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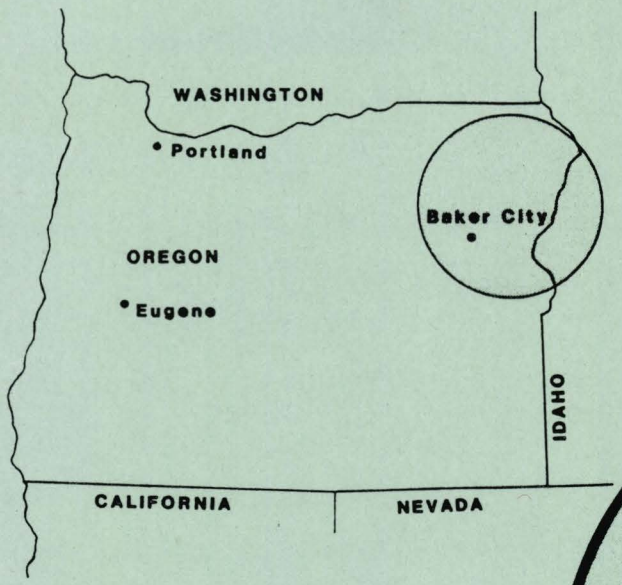
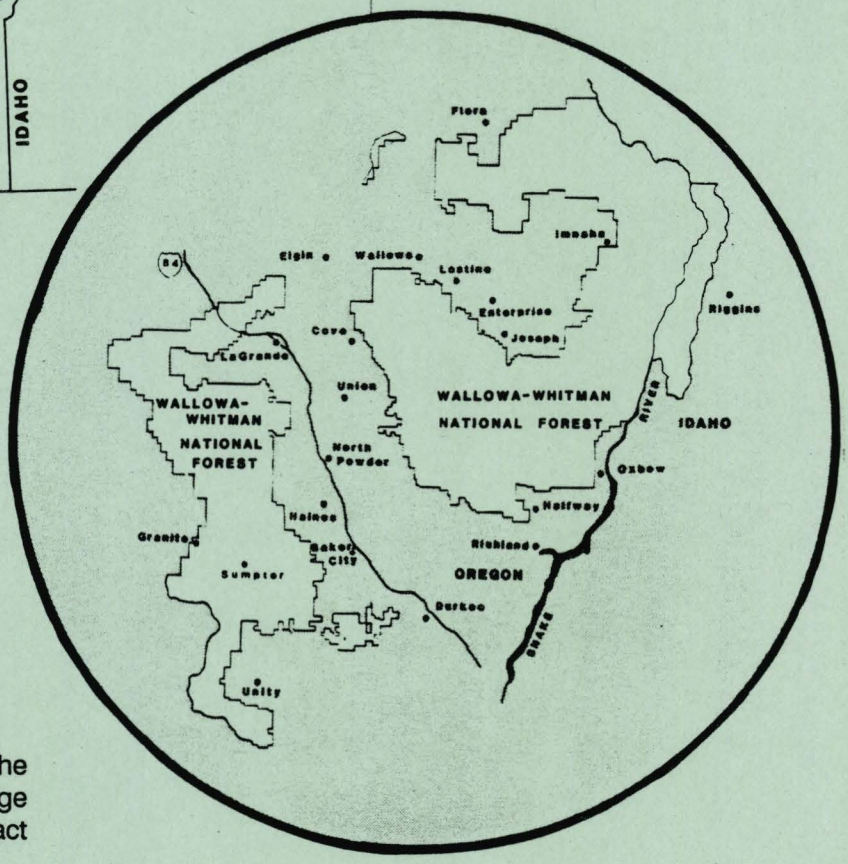
1996

Wallowa-Whitman National Forest Land and Resource Management Plan

Monitoring and Evaluation Report: 1995





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1. INTRODUCTION

The Forest Plan (Land and Resource Management Plan) for the Wallowa-Whitman National Forest was approved by the Regional Forester on April 23, 1990. The Forest Plan specifies how areas of the Forest are to be managed and which resources are to be emphasized, sets standards and guidelines for management, establishes projected levels of goods and services, and specifies monitoring requirements.

Monitoring takes place to determine if the Forest Plan is being implemented as intended, to measure effectiveness of the implementation in achieving the desired future condition, and to verify that assumptions made during the planning process are still valid. Monitoring results are evaluated to determine if changes are needed in management practices or if a Forest Plan adjustment is indicated.

This report summarizes results of Forest Plan monitoring and evaluation for fiscal year 1995 (October 1, 1994 to September 30, 1995). All references to years indicate fiscal years.

The purpose of this report is to provide information to the agency and the public about how well Forest Plan objectives are being met. This and previous years' reports will be used to provide information for the five-year Forest Plan review called for in the forest planning regulations. Those regulations require the Forest Supervisor to "review the conditions on the land covered by the plan at least every five years to determine whether conditions or demands of the public have changed significantly." This report is the fifth year of reporting. The Forest Supervisor will use this report in conjunction with the 1991-1994 reports to determine whether conditions or demands have changed significantly.

This report consists of five chapters:

Chapter 1, Introduction.

Chapter 2, Summary of Findings and Actions: summarizes the individual monitoring items and actions to be taken.

Chapter 3, Accomplishments: this chapter provides a tabular comparison of planned versus actual accomplishments for selected outputs and activities.

Chapter 4, Forest Plan Monitoring: provides results of the monitoring and evaluation process, as well as a listing of actions to be taken.

Chapter 5, Forest Plan Appeals and Amendments: discusses the current status of appeals and the amendments made to the Forest Plan during the monitoring year.

The 1995 monitoring results continue to validate the indications reported in the 1991 through 1994 monitoring and evaluation reports that conditions and interrelationships between resource objectives and commodity outputs have changed from those originally projected in the Forest Plan. Environmental consequences may also be different because the rate of implementation of the Forest Plan is different than planned for certain monitoring items.

In response to the monitoring information, the Forest has submitted certain issues to the Regional Forester for review. The Regional Forester has reviewed these issues within the context of other regional issues and new information (research) in deciding which issues need to be addressed in a Forest Plan adjustment and when that adjustment should begin. Major adjustments of individual Forest Plans are now on hold pending completion of the ICBEMP (Interior Columbia Basin Ecosystem

Management Project) and EIS (environmental impact statement) that is under way in Walla Walla, Washington.

The Forest Service anticipates that over the next year they will begin adjustment processes for forest plans throughout the Pacific Northwest Region. This will be due to the President's Plan for western Oregon and Washington forests, the study referred to as PACFISH, and the ICBEMP. Project-specific analyses and decisions will continue to amend forest plans in order to meet new Regional standards for ecosystem management and Regional Forester's Amendment 2 intended to ensure consistency with National Forest Management Act viability for old-growth associated species. Programmatic and project-specific decisions may result in amendments to the Forest Plan.

A study on the Wallowa-Whitman has been initiated to determine whether further changes should be made in the management of the HCNRA (Hells Canyon National Recreation Area). A draft EIS has been issued in this planning process. It is anticipated that a final EIS and a record of decision will be issued in 1996.

2. SUMMARY OF FINDINGS AND ACTIONS

The following table provides summaries of monitoring results and actions to be taken. A more complete discussion of monitoring results, analysis, and the actions to be taken is discussed in Chapter 4 of this document. Action to be taken is described in the following paragraphs:

Continue to Monitor

Monitoring will continue on all items including those with results within the threshold of variability listed in Chapter V of the Forest Plan or where more than one year of data is needed to evaluate results.

Change Management Practices

Results exceeded the threshold of variability for a particular question, and evaluation of the situation indicated the need to change practices or procedures to comply with the Forest Plan.

Further Evaluation

Results may or may not have exceeded the threshold of variability, but additional information or evaluation is needed to better identify the cause of the concern and/or to determine future actions.

Propose Forest Plan Adjustment

Results were inconsistent with the Forest Plan, or the Forest Plan direction was not clear. The follow-up action is changing or clarifying the Forest Plan through the amendment or revision process.

Summary of Findings and Action to be Taken	Continue to Monitor	Change Management Practices	Further Evaluation	Propose Forest Plan Adjustment
Item 1, Compliance with NEPA: NEPA analysis was found to be adequate. The concern of changing biological conditions and potential cumulative effects has been submitted to the Regional Forester as a potential issue to be considered in a Forest Plan adjustment.	X	X	X	
Item 2, Forest Plan Standards and Guidelines (S&Gs): Monitoring check lists, the NEPA process, project administration, project-level monitoring, and management reviews assure applicable S&Gs are addressed in planning and then implemented. Results are specifically addressed in the other monitoring items. Although procedures are in place to implement the S&Gs of RF Amendment 2, reporting has not been incorporated into the monitoring check list.	X	X		
Item 3, Insect and Disease Management: Western spruce budworm and Douglas-fir tussock moth populations remain low. The build-up of Douglas-fir beetle populations continued primarily on La Grande Ranger District. More recent trends of bark beetles in the drier pine community types indicate that overstocked ponderosa pine stands have become more susceptible to bark beetles in the past few years.	X		X	X
Item 4, Timber Offered for Sale: The volume offered for sale in 1995 was 28% of the ASQ projected in the Forest Plan. The Forest received a target and funding to analyze, prepare, and offer 53 MMBF; the target was met.	X		X	X

Summary of Findings and Actions to be Taken	Continue to Monitor	Change Management Practices	Further Evaluation	Propose Forest Plan Adjustment
Item 5, Silvicultural Harvest Methods: Timber sale cutting units covered 11,732 acres, 48% of the acreage assumed in the Forest Plan. A shift away from regeneration harvesting and an increase in salvage harvesting has created a substantial reduction in volume offered for sale. A number of assumptions in the Forest Plan are no longer valid for a variety of reasons.	X		X	X
Item 6, Precommercial Thinning: Treated area was 83% of projected. The decadal average accomplishment to date is 7,108 acres or 96% of the Forest Plan goal, well within the threshold of variability.	X			
Item 7, Harvest Units: Forest Plan S&Gs for size and dispersal of created openings and state of vegetation are being appropriately implemented.	X			
Item 8, Reforestation: Reforestation accomplishment is 81% of the Forest Plan goal. First year survival was much improved over last year due to a more favorable planting season and an overall cooler, wetter growing season.	X		X	
Item 9, Lands not Suitable for Timber Management: A map of existing vegetation has been installed in GIS. The level of re-evaluation of land suitability is unknown. Suitability data has been recorded for approximately 6% of the delineated stands on the Forest.	X		X	
Item 10, Vegetation Management: The area treated with herbicides (1,654 acres) and the area treated with prescribed fire (5,781 acres) represent a 41% increase, and a 50% decrease, respectively, from 1993 when the Forest's monitoring guide for vegetation was finalized.	X			
Item 11, Transportation Planning: Progress is being made toward meeting open road density guidelines. However, progress is slow and it appears some resource objectives are not being met due in part to open road densities greater than the guideline levels.	X	X	X	X
Item 12, Range Outputs: There were 160,255 AUMs under term grazing permits and an additional 13,063 AUMs under term private land permit. This level of permitted grazing is within the threshold set in the Forest Plan.	X			
Item 13, Forage Utilization: Of the monitored pastures, 87% met Forest Plan utilization standards, 9% did not meet standards, and 4% were monitored but not sufficiently to guarantee standards were met. The threshold of variability was not exceeded.	X		X	
Item 14, Range Vegetation Conditions: Of the area analyzed (39,597 acres), 81% meets Forest Plan standards. The current pace of analysis may not be adequate to ensure up-to-date allotment management planning.	X			

Summary of Findings and Actions to be Taken	Continue to Monitor	Change Management Practices	Further Evaluation	Propose Forest Plan Adjustment
Item 15, Range Improvements: 108 structures and 175 acres of non-structural improvements were accomplished. Targets not met were primarily due to weather conditions preventing the completion of a prescribed burn.	X			
Item 16, Allotment Management Planning: The Forest updated two AMPs and completed NEPA analysis for a decision on bighorn/domestic sheep. Many ongoing AMP efforts have been delayed because priorities changed from development of AMPs to completion of NEPA decisions related to permit issuance. Although there has been progress, the level of analysis and planning is too low to ensure maintenance of up-to-date allotment management plans. The threshold has been exceeded.	X	X	X	X
Item 17, Noxious Weeds: Accomplishments exceeded assigned targets. The need for increased effectiveness monitoring is indicated.	X			
Item 18, Watershed Standards, Guidelines, and Best Management Practices: Generally, implementation of watershed S&Gs and best management practices are within the established threshold. There are instances where road drainage, open road densities, and certain mining activities do not meet standards.	X			
Item 19, Riparian Cumulative Effects: A number of long-term studies are being conducted in order to address whether riparian and aquatic systems are being maintained or improved if in poor condition. Only a few studies have yielded sufficient data to make valid comparisons with the thresholds of variability.	X			
Item 20, Peakflows/Lowflows: Of 47 projects reviewed during the planning phase, S&Gs and BMPs appear to have been properly considered and incorporated into project design. Studies conducted on permanent stream channels to monitor long-term trends have not yet provided measurable results.	X			
Item 21, Soil Productivity: Of eight post-project reviews, soil S&Gs were determined to be implemented and within threshold, except for some aspects of two projects. Action items have been developed to monitor soil compaction, soil displacement, soil erosion, and soil microbiology.	X	X		
Item 22, Air Quality: This was the first year for implementation of the memorandum of understanding between Oregon Department of Forestry, Region 6, and DEQ for an innovative and effective air quality monitoring program. Nephelometer readings demonstrated that no significant intrusions occurred at any tested sites during the spring burning season. Visibility is the only AQRV currently being monitored for Clean Air Act and Forest Plan compliance.	X			

Summary of Findings and Actions to be Taken	Continue to Monitor	Change Management Practices	Further Evaluation	Propose Forest Plan Adjustment
Item 23, Fisheries Habitat: A total of 363.5 acres of riparian habitat improvement was completed. Three hundred fish habitat structures were placed in streams. This compares with the Forest Plan average annual projected output of 250 acres and 500 structures of fish habitat improvement work.	X			
Item 24, Anadromous Fisheries Consultation: No adverse effects to habitat or PET species occurred as a result of timber sales or river craft on the Snake River. Utilization standards were exceeded on two livestock grazing allotments. BLM's proper functioning condition analysis was introduced to improve riparian monitoring and management.	X			
Item 25, Columbia River Basin Anadromous Fish Habitat Management Policy: Desired future conditions for 90% of the Snake River basin stream systems have been established. Stream inventory required by the PIG is approximately 95% complete. Two-hundred-eighty-five projects were screened, modified, and/or developed to meet INFISH standards.	X			
Item 26, Salmon Summit Action Plan Commitments: The acquisition program is actively moving ahead in seeking and acquiring parcels to benefit anadromous fish. One 23-acre easement was acquired in 1995. A mining site that threatened the Upper Grande Ronde River spring/summer chinook habitat and population was restored. The Forest has completed an inventory of existing diversions requiring screens.	X			
Item 27, Old Growth: Since only about 30% of the designated old-growth meets the Forest Plan definition and replacement stands are not readily available, management requirements for old-growth (set by Region 6) are not being met. Results indicate the threshold of variability has been greatly exceeded.	X		X	X
Item 28, Dead and Defective Tree Habitat and Primary Cavity Excavators: Estimates on 11 timber sales indicated that the 40% snag level within subwatersheds was not met on four sale areas. Several areas were surveyed for snag densities; average snag densities for the surveyed area was slightly less than the 20% level. Based on estimates and surveys for snag habitat the threshold of variability is exceeded.	X	X	X	X
Item 29, Pileated Woodpecker: Information is available on 18 designated old-growth areas based on surveys or chance observations. Twelve of those areas indicated sighting or recent evidence of feeding. The level of monitoring/observation was inadequate to determine nesting use. Additional occupancy, production, and population trend information is needed.	X		X	
Item 30, Goshawk Populations: Surveys of goshawk nests were conducted on all districts. Forty-six historical nests were surveyed for goshawk occupancy. Fifteen were active. Seven nests averaged 1.4 young per nest. Five new nests were found.	X		X	

Summary of Findings and Actions to be Taken	Continue to Monitor	Change Management Practices	Further Evaluation	Propose Forest Plan Adjustment
Item 31, Pine Marten Populations: Because of a very low level of winter track surveys, there is no additional monitoring information. Available data is inadequate to address monitoring questions.	X			
Item 32, Elk Habitat/Populations: On 13 projects, two did not meet the the HEI objective of 0.5. On six projects, HEI was not calculated. Post hunting season elk numbers were 10% over management objectives. Bulls per 100 cows (6) and calves per 100 cows (37) were below the management objectives of 12% and 43%, respectively.	X	X	X	X
Item 33, Bald Eagles: Two active nest sites produced one eaglet. Both sites have approved nest site management plans, but an alternate nest site on one of them is outside the management area. Site plans for four known roost sites have not been developed within the timelines established in the Forest Plan.	X	X		
Item 34, Peregrine Falcons: Two nests were located; six birds were fledged at the two sites. A draft management plan for a new nest site in the Hells Canyon Wilderness has been developed but needs more specific information to complete and finalize. The two Hells Canyon hacking sites were operated in 1995 (the last year for these sites) and fledged four peregrines.	X			
Item 35, Sensitive Species: Biological evaluations were prepared for 53 projects. There were surveys conducted for wolverine, lynx, Townsend's big-eared bat, upland sandpiper, and sandhill crane.	X			
Item 36, MacFarlane's Four-O'Clock: A new population of approximately 50 plants was found this year. Data was collected from ten permanent monitoring plots at the Tryon Bar and West Creek populations. Corrective action taken in the past to prevent gully erosion and livestock trailing have not been particularly effective. New and additional fencing will be added to the Pittsburg C&H Allotment through the ongoing planning process.	X	X		
Item 37, Greenman's Lomatium: No monitoring was done this year. The Forest Service consulted with USFWS as part of a biological evaluation process conducted to improve the sewage system on Mt. Howard.	X			
Item 38, Minerals: All plans of operating involving surface-disturbing operations were monitored. Sporadic and weekend assessment operations were monitored at least once. There were no cases reported in which resource objectives were not met based on this monitoring. Implementation monitoring indicates that are several S&Gs that cannot be met in the short term during placer mining activities.	X		X	X
Item 39, Wilderness: Wildernesses are generally being managed according to management direction and provisions of the Wilderness Act. The Eagle Cap Wilderness Study indicates several areas where Region 6 standards are not being met and efforts are being made to correct them.	X			

Summary of Findings and Actions to be Taken	Continue to Monitor	Change Management Practices	Further Evaluation	Propose Forest Plan Adjustment
Item 40, Wild and Scenic River: Wild and scenic river management goals have been met. River studies and planning are progressing.	X			
Item 41, Recreation Setting: The Forest appears to be providing a wide range of recreation opportunities to the general satisfaction of users. Existing facilities are being managed consistent with ROS, and S&Gs are being met.	X			
Item 42, Off-Road Vehicle (ORV) Use: ORV use is occurring at various levels and in various ways across the Forest. Although use is increasing, it is being managed to meet the intent of the S&Gs outlined in the Forest Plan.	X		X	
Item 43, Visual Resource Objectives: Visual quality objectives appear to be an important and recognized part of project planning on the Forest. Progress is being made in completing viewshed management plans for Level I corridors, with about 40% of the 42 viewsheds having completed plans.	X			
Item 44, Cultural and Historic Site Protection, Rehabilitation, and Interpretation: Monitoring of 104 sites where potentially-impacting activities have occurred revealed some impact to two sites.	X	X		
Item 45, Budget: A continuing trend of decreasing budgets became very apparent with certain work activities funded well below program maintenance levels. Many of the budget line items for NFS funds were less than 50% of identified needs.	X	X	X	
Item 46, Costs and Values: Based on the period 1993-1995 estimated cost (total direct or controllable expenses) per MBF of harvested commercial timber is 519% greater than projected in the Forest Plan. The average revenue per MBF from harvest of commercial timber for the same period was a 14% increase over projected. Recreation values average 56% higher than the values used in the Forest Plan. Forest expenditures are 33% greater than projected. Changes exceed the established threshold.	X	X	X	X
Item 47, Community Effects: Estimated Forest-related jobs are 7% less than projected in the Forest Plan. Personal income derived from Forest-related jobs is estimated to be 16% less than projected. The three-year average of total payments to counties is 72% lower than projected. Populations are near projected levels. Changes exceed the established threshold.	X		X	X
Item 48, Adjacent Lands: Coordination with adjacent landowners continues to be conducted through project scoping, in compliance with NEPA. This consists of formal and informal contacts about proposed Forest activities that may affect them. The results for these monitoring items are within the threshold of variability.	X		X	X

3. ACCOMPLISHMENTS

This chapter provides a summary of selected accomplishments and resource outputs for the fiscal year.

The following table compares resource outputs and activities projected in the Forest Plan with actual fiscal year 1991-1995 outputs and activities.

RESOURCE OUTPUTS AND ACTIVITIES
COMPARISON OF PROJECTED AND ACTUAL LEVELS

Output/Activity	Unit of Measure	Forest Plan Projected Output/Activity Level	FY 95 Output	FY 91 to 95 Average Output
Timber Harvested by:				
Commercial Thinning	M Acres/Year	3.9	6.29	3.23
Clearcut	M Acres/Year	4.3	.21	.30
Shelterwood	M Acres/Year	8.5	.73	2.85
Overwood Removal	M Acres/Year	1.2	1.73	1.21
Selection	M Acres/Year	6.5	.11	.81
Sanitation/Salvage	M Acres/Year	0	2.94	3.47
Special Harvest	M Acres/Year	0	0	.04
Total		24.4	12.0	11.9
Allowable Sale Quantity Sawlog Volume	Million BF/Year	141	39.2	32.6
Unregulated Timber 1/	Million CF/Year		12.6	6.3 1.7
Personal Use Fuelwood	Million CF/Year	5.0	16.4	16.0
Reforestation 2/	M Acres/Year			
Planting		4.8	7.9	8.3
Seeding				.02
Site Prep Only		1.7	.7	1.7
Natural		8.0	3.2	3.2
Total		14.5	11.8	13.2
Timber Stand Improvement	M Acres/Year	7.4	6.2	7.1
Fire Management Effectiveness Index	$/M Protected Acres/Year	1,298	1,552	1,093
Developed Recreation Use	M RVDs/Year	399	906	792
Nonwilderness Dispersed Recreation Use 3/	M RVDs/Year	796	1,873	1,603
Wilderness Use	M RVDs/Year	78	198	197
Trail Construction and Reconstruction	Miles/Year	4	15	18
Developed Recreation Capacity	MPAOT	661	829	842
Wilderness Management	M Acres	583	583	583
Land Exchange or Transfer 4/	Acres/Year	250	0	2,990
Range Vegetation Management 5/	M Acres	2,307	2,307	2,307
Noxious Weed Control	M Acres/Year	0.400	1.0	1.27
Trail Maintenance	Miles	2,250	914	1,488
Land Line Location	Miles/Year	100	15.5	31.3

RESOURCE OUTPUTS AND ACTIVITIES COMPARISON OF PROJECTED AND ACTUAL LEVELS				
Output/Activity	**Unit of Measure**	**Forest Plan Projected Output/Activity Level**	**FY 95 Output**	**FY 91 to 95 Average Output**
Management Indicator Species 6/				
Pileated Woodpecker	Pairs	346	8/	8/
Goshawk		7/	8/	8/
Primary Cavity Excavators		7/	8/	8/
Resident Trout		7/	8/	8/
Steelhead		7/	8/	8/
Pine Marten	Pairs	7/	8/	8/
Rocky Mountain Elk 9/	M Elk Summering	21.0	24.6	25.3
Fish Habitat Improvement	Acres	250	84	1,267
	Structures	500	1,131	109
Wildlife Habitat Improvement 10/				
Non-Structural	Acres	1,000	5,395	14,324
Structural	Structures	N/A	681	5,064
Watershed Improvement Work	Acres/Year	1,000	200	288.5
Range--Permitted Grazing 11/	M AUMs/Year	186	173.3	175.4
Allotment Management Planning	Plans/Year	15	2	2.6
Arterial and Collector Road Construction and Reconstruction	Miles/Year	69	10	10.3
Timber Purchaser Road Construction and Reconstruction	Miles/Year	180	47	36.4
Roads Suitable for Public (Passenger Car)	Miles	900 12/	829	Ave. NA
Roads Suitable for Public (High Clearance Vehicle)	Miles	5,380 12/	5,014	Ave. NA
Closed Roads	Miles	4,475 12/	3,883	Ave. NA
Minerals Produced 13/	Million $/Year	13.5 13/	.5 13/	.8 13/
Mineral Operating Plans	Number Active /Year	354	483 14/	498 14/
Human Resource Program	Person Years/Year	4	24	25
Payments to Counties	Million $/Year	5.5	.96	1.9
Total National Forest 15/				
Allocated	Million $/Year	10.0	9.6	9.0
Appropriated	Million $/Year	20.6	24.3	29.5

1/ Salvage of cull, dead lodgepole pine, and small diameter (less than 5 inches) material which is not part of the allowable sale quantity.
2/ Includes all lands where activities to aid in tree reestablishment are employed.
3/ Includes roaded natural, roaded modified, rural, and urban recreation opportunity spectrum classes.
4/ Although no land was exchanged or transferred, a conservation easement was purchased on 23 acres and mineral rights were purchased on 13,607 acres of NFS lands.
5/ All Forest acreage except for that assigned to Management Areas 15 and 16.
6/ Numbers of management indicator species are index values only, based upon acres of available habitat.
7/ Actual numbers to be generated during monitoring.
8/ Population data not available.
9/ Index number of elk summering on the Forest.
10/ Outputs include all improvements regardless of funding source.
11/ Levels shown are estimated for the Forest as a whole, based on available forage and investments by livestock permittees and the Forest Service. Levels for individual grazing allotments will depend on allotment-specific analysis.
12/ At end of decade.
13/ Gross metal values, including costs of extraction and processing. Therefore not directly comparable with other resource values contained in this analysis. For 1995 the amounts include an estimated value of $475,000 for locatable minerals, $25,000 for salable and aggregate minerals. Estimates for locatable mineral production is based on a confidential survey.
14/ Includes operating plans, notices of intent, salable material sales and in-house aggregate use and one oil and gas lease. The number of plans was down in 1995 because the Forest did not process all plans received.
15/ Figures have not been adjusted for inflation.

4. FOREST PLAN MONITORING

This chapter discusses results and evaluation of the monitoring process. It also shows action to be taken in response to the findings.

Monitoring Item 1
Compliance with NEPA and Forest Plan

Goal

Comply with NEPA (National Environmental Policy Act of 1969) requirements, including cumulative effects analysis, during project-level decision making.

Purpose of Monitoring

To verify NEPA procedures are being implemented properly in individual project analysis, including:

- An appropriate level of environmental analysis, including scoping, occurs.
- There is an early and open process for determining the scope of issues to be addressed and those to be examined in detail.
- Environmental information is available to interested publics before decisions are made and before actions are taken.
- Documentation of the analysis and decision documents are appropriate for the scope, complexity, and nature of the action.

Threshold of Variability

If there is a failure to use appropriate procedures or to meet Forest Plan requirements.

Results and Evaluation

NEPA Monitoring

Of the 101 NEPA decisions Forest-wide, 79 were monitored using the project monitoring S&G (standards and guidelines) check list.

Based on review of project monitoring check lists, concerns have been expressed regarding the understanding and/or implementation of Forest-wide S&Gs of the following resource areas.

- Diversity
- Soils
- Watershed
- Wildlife
- Range
- Transportation System
- Old-growth

Individual findings and evaluations can be found within the specific resource sections of this monitoring report.

As with previous years, reviews of project monitoring S&G check lists and field reviews indicate that the interdisciplinary planning teams understand and implement the Forest Plan as designed. A concern identified in previous reports about adequate NEPA analysis for the firewood cutting program was resolved in early 1996 with the implementation of a selected alternative from a fire program environmental analysis.

Individual projects throughout 1995 continue to increase the Forest's awareness of potential concerns and conflicts with implementing the Forest Plan. Cumulative effects of timber management activities on wildlife habitat and watershed resources is a primary concern at both district and Forest levels. Past insect epidemics and past management practices have affected the biological conditions across the Forest, creating cumulative effects that are broad in scale and sometimes difficult to adequately address at the project or subwatershed level. However, progress is continuing to be made with the completion of two additional watershed analyses. The Forest has now completed five watershed analyses, aiding project and Forest level planning.

These changed biological conditions and cumulative effects should be analyzed at the appropriate geographic scale, Forest-wide. Although it was anticipated that this level of analysis would begin in 1993, ICBEMP (the Interior Columbia Basin Ecosystem Management Project) has taken a lead role in conducting this effort with the assistance of individual forests. A final product from the this effort is anticipated in 1996.

In response to 1993 monitoring and evaluation findings for implementation of the CMP (comprehensive management plan) for the HCNRA, an EIS (environmental impact statement) was initiated to amend the Forest Plan. A draft EIS was released in February 1996 with implementation scheduled early in 1997.

Appeals

Of the 101 NEPA decision documents signed in 1995, 15 decisions were appealed as follows:

NEPA Appeal Summary

RESOURCE	Decision Documents	Decisions Appealed	No. of Appeals
Recreation	8	3	34
Timber Management/Silviculture	26	6	7
Fisheries Enhancement	2		
Wildlife Habitat/Enhancement	3		
Range Management/Enhancement	6	6	13
Engineering	3		
Minerals	43		
Special Uses	7		
Watershed Improvement	1		
Wild and Scenic River Plans	3		
TOTAL	101	15	54

Recreation

The decision to implement the Snake River Plan (Wild and Scenic Snake River Recreation Management Plan) received 31 appeals. The decision was affirmed in part by the Deputy Regional Forester, with provisions to conduct a new analysis on the potential economic effects to outfitter and guides and issue a new decision. In addition, closure of the scenic river to floatplanes and opening of the Sluice Creek airstrip were remanded back to the Forest for lack of adequate analysis. The Eagle Cap Stewardship Plan received two appeals. One of the appeals was withdrawn by the appellant (Wilderness Watch) following negotiations on the appeal issues. The other appeal was denied by the Regional Forester.

Timber

Five of the six timber management decisions appealed were for green or salvage timber sales. All five decisions were affirmed by the Regional Forester. The sixth timber management decision appealed was for herbicide application on a district. That decision was also affirmed by the Regional Forester.

Range Management

Three of the six range management appeals were filed by the North Burnt River Allotment permittee on the Unity District. All three appeals were dismissed without review. Appeals for the Big Sheep Allotment on the Wallowa Valley District and for termination of domestic sheep on the HCNRA were affirmed by the Regional Forester. An appeal filed on the Pittsburg Allotment on the HCNRA is still pending.

Litigation

Idaho Wildlife Federation and Hells Canyon Preservation Council et al v. Richmond et al: In 1994 the plaintiffs filed a complaint to stop domestic sheep grazing within the Hells Canyon National Recreation Area. The original complaint was temporarily stayed until a new decision was issued by Forest Supervisor Richmond in August 1995. An amended complaint was filed by the plaintiffs in January, 1996 requesting a preliminary injunction to immediately remove domestic sheep from the HCNRA until there was a decision issued by the court on the merits of the case. In the spring of 1996, the court ruled in favor of the Forest Service, upholding the decision.

Hells Canyon Preservation Council et al v. USDA Forest Service: In May, 1995 the plaintiffs filed a complaint challenging the Deputy Regional Forester's decision to delay implementation of the Wild and Scenic Snake River Recreation Management Plan. In July the court denied a preliminary injunction to begin implementation of the river plan and stressed the case be heard on its merits. The case has since been dismissed.

Hells Canyon Preservation Council et al v. John Lowe et al: In January, 1996 the plaintiffs filed a complaint (similar to their 1995 complaint) challenging the Forest Service's failure to implement the Snake River Plan and that the boating limits are arbitrary and capricious. The outcome of this case is pending.

Action to be Taken

Thresholds have not been exceeded. Continue to monitor.

Ensure that project-specific decisions with the potential to amend the Forest Plan are reviewed with the appropriate level of analysis. Also ensure that project-specific amendments to the Forest Plan are well documented in the decision record.

Ensure that interim direction from the ICBEMP and its EIS, in addition to new information and refinement of S&Gs, are appropriately interpreted for implementation under the Forest Plan in project-specific activities.

Continue the consultation process with the NMFS (National Marine Fisheries Service) on threatened chinook salmon.

The concern of changing biological conditions and potential cumulative effects has been submitted to the Regional Forester as a potential issue to be considered in a Forest Plan adjustment. Further evaluation will be conducted in support of the Forest Plan adjustment process. The adjustment process is currently on hold until the ICBEMP is completed. Prior to completion of the ICBEMP the interim direction for timber sale preparation and for protection of anadromous and inland fisheries habitat is being implemented on site-specific projects to maintain management options.

Monitoring Item 2
Forest Plan Standards and Guidelines

Goal

Implement Forest-wide and management area S&Gs for all resources.

Purpose of Monitoring

To determine if applicable S&Gs from the Forest Plan are correctly and consistently implemented on individual projects.

Threshold of Variability

If there is a failure to correctly implement S&Gs or a failure of S&Gs to meet goals and objectives.

Results and Evaluation

Monitoring is based on resource-specific monitoring, project-level monitoring, and use of the implementation monitoring checklist. The checklist includes all of the S&Gs from the Forest Plan and is used during pre-project reviews and during active and post-project reviews. Pre-project reviews are completed on 100% of the projects documented in an EA (environmental assessment), EIS, or decision memorandum to determine if applicable S&Gs have been incorporated during the planning phase of the project. Active and post-project field reviews are conducted on a sample number of projects to ascertain that prescriptions designated to meet S&Gs have been implemented. Projects are selected for field review to represent the complexity and mix of all projects.

There were 70 pre-project check lists completed for 1995. The check list was also used during nine district-level field reviews.

The NEPA process, project administration, project-level monitoring, and management reviews also assure applicable S&Gs are addressed in planning and then implemented.

The check lists are used to review approximately 230 Forest-wide standards and 20-30 S&Gs specific to each management area to determine if a standard is applicable to a project, and if so, whether it has been met.

In most cases where S&Gs have not been fully met they are discussed in the monitoring item specifically associated with those S&Gs. The following table outlines the types of S&Gs that were not fully met on some projects and shows the corresponding monitoring item where a discussion can be found.

Monitoring Item With Discussion	Standard and Guidelines Not Fully Met
Compliance with NEPA and Forest Plan	General S&Gs
Lands Not Suitable for Timber Mgmt.	Re-evaluation of land suitability
Transportation System	Road density and closure effectiveness
Forage Utilization	Utilization standards
Watershed	Water and road density
Riparian Cumulative Effects	Riparian and stream protection

Soil Productivity	Soil protection
Old-Growth	Providing replacement stands
Dead and Defective Tree Habitat	Snag density
Elk Habitat	Habitat and open road density
Minerals	Mining operations
Cultural and Historic Site Protection	Protection of sites

Not addressed in other portions of this report is the failure to report monitoring associated with implementation of S&Gs in the RF Amendment 2 (Regional Forester's Forest Plan Amendment 2), which provides an interim approach for sale preparation. Although procedures are in place to implement the S&Gs, reporting has not been incorporated into the monitoring check list.

Action to be Taken

Action associated with other monitoring items are discussed under those items.

Public involvement in project monitoring needs to be encouraged and facilitated.

Update the check list to include S&Gs associated with interim management direction.

Monitoring Item 3
Insect and Disease Management

Goal

Manage forest to the extent that pest levels are compatible with resource objectives.

Purpose of Monitoring

To determine if destructive insect and disease organisms are remaining below potentially damaging levels following management activities.

Threshold of Variability

If there is evidence of insect or disease build up above endemic levels.

Results and Evaluation

Insect and disease monitoring is done with plot measurements and field observations by scientists at the Forestry and Range Sciences Laboratory at La Grande, by specialists at the Blue Mountain Pest Management Zone, and by the Forest's cadre of silviculturists. Also, an annual aerial detection survey is conducted cooperatively with the State of Oregon Department of Forestry. This survey is used to provide information on insect infestations and insect-caused losses.

Status of Inventories, Studies, and Observations

Defoliators

Western Spruce Budworm and Douglas-fir Tussock Moth

Populations of both western spruce budworm and Douglas-fir tussock moth continued to remain low during 1994. No defoliation was mapped in the 1995 aerial insect detection survey. Early reports from the aerial survey crew suggested that there had been some budworm defoliation, especially on the northern end of the Forest; but, ground checks proved these reports to be false. Observers were mistaking abundant cone crops in the tops of Douglas-fir for defoliation. These trees had not produced such cone crops for a number of years due to damage of crops from budworm prior to 1993.

Bark Beetles

More recent trends of bark beetles (e.g., mountain pine beetle, western pine beetle, and pine engravers) in the drier pine community types indicate that overstocked ponderosa pine stands have become much more susceptible to bark beetles in the last few years. Overstocking has led to reduced growth and vigor, and has predisposed many thousands of acres of ponderosa pine to attack by bark beetles. Cumulative effects of moisture stress for many years have weakened the overcrowded, slow-growing pines to the point that bark beetle populations are able to easily overcome the host's resistance, and reproduce and increase their numbers in these trees, leading to outbreaks in most parts of the pine-dominated portions of the Blue Mountains during 1995. Pine engravers in combination with mountain and/or western pine beetles were particularly bad in 1995, having increased to outbreak in most areas because of damage from blowdowns and broken tops, and improperly treated pine slash on most ownerships where pine was harvested or thinned during January through July of 1995. Some populations began building in 1994 and continued under favorable conditions in 1995.

The current beetle activity in pine on the Forest is scattered on all ranger districts. The most serious outbreak of bark beetles in pine occur on the Wallowa Valley RD in the vicinity of Starvation and Miller's Ridges; but, some level of bark beetle activity seems to be present in nearly all overstocked pine stands on the Forest.

Many areas on the Wallowa-Whitman, as well as on other national forests in the Blue Mountains, are currently overstocked and at high risk of being attacked by beetles.

A tremendous buildup of Douglas-fir beetle populations occurred during 1993 and 1994 in most of the severely budworm-defoliated stands, but most of the activity is centered on the La Grande RD where budworm damage was most severe. The buildup of Douglas-fir beetle at this time is typical of the behavior of this insect following a defoliator outbreak, particularly compounded by years of drought stress. The outbreak continued to be especially severe on the western portions of the La Grande RD. Outbreak populations are likely to continue for a few more years before populations decline to normal levels. Sanitation and salvage efforts aimed at removing brood infested trees help slow new beetle-caused tree mortality. Thinning overstocked, poor vigor stands is also helpful in improving the capacity of trees to resist beetle attacks, and altering conditions of stands making them less favorable to beetle attack. Experimental trials to exclude beetles from certain high-risk stands through use of anti-aggregation pheromones proved successful in 1995 on portions of the La Grande District. These trials will continue into 1996 through cooperative efforts with the Forest, Pacific Northwest Research Station, and OSU (Oregon State University). The Forest Service is awaiting registration of this material by EPA (Environmental Protection Agency). The registration of this material will provide a valuable option by which to manage Douglas-fir beetle in selected sites during the course of this, and future outbreaks.

Diseases

Quantifying changes due to tree diseases in terms of tree growth reduction, mortality, and decay volume is difficult to accurately access beyond the stand level. Forest-wide estimates of these effects have not been done due to the lack of accurate information on disease occurrence.

Forest tree disease severity and occurrence are dependent upon a variety of variables, but in general, stands in later-successional stages--with a high proportion of shade-tolerant species--having had multiple entries, or on sites with excessive disturbance, have highest levels of activity.

Armillaria Root Disease

Large centers of especially virulent armillaria root disease occur in the upper South Fork Burnt River drainage on the Unity District, the Summit Spring Ridge on the La Grande District, Kuhn Ridge on the Wallowa Valley District and others. In these areas there are high levels of tree mortality and poor regeneration. A great many more areas, including various mixed conifer communities on all districts, have active armillaria, causing individual tree and small group mortality.

Laminated Root Rot

Laminated root rot is located in a few known areas on the Forest. Mt. Emily, including the Five Points drainage, has a substantial amount of this root disease. Several small areas of infestation are known in the Ladd Canyon area and on the east face of the Elkhorn Mountains. The Kuhn Ridge area is one of the few areas on the east side of the Forest where this disease is known. Since spread via spores is infrequent, this is considered a disease of the site and will not effectively spread to new areas. Where this disease does occur, significant damage modifies species composition; Douglas-fir and grand fir are readily infected and are removed from the stand via mortality and windthrow.

Annosus Root Disease

Annosus root disease primarily affects true firs on the Forest. Pine is infected in a few areas, as is Douglas-fir on rare occasions. Annosus spreads via airborne spores, infecting recently cut large fir stumps. The fungus spreads through the dead root system causing root disease of living residuals and regeneration where their roots contact infected roots.

This root disease is common at low intensities on the Forest. It is believed that the severity will increase since it takes up to 25 years following cutting for mortality of adjacent firs to start occurring. Many untreated stumps cut during the last two decades will eventually become centers for infestation.

Five years ago the Forest implemented a policy of treatment to reduce potential for further spread of this disease. In the future, in areas being managed for true fir, freshly-cut stumps will be treated with borax to prevent colonization by the airborne spores of the fungus.

Stem Decays

Of most concern is Indian paint fungus, caused by Echinodontium tinctorium, which primarily occurs in grand fir. Extensive levels of decay can be expected in older trees in mature stands anywhere on the Fores. This disease tends to be less prevalent when the grand fir are part of a mixed conifer stand dominated by ponderosa pine and western larch than when grand fir dominates the stand. Any unevenage management actions which tend to maintain fir regeneration and resulting domination will also tend to promote high levels of this disease.

Dwarf Mistletoes

The four species of dwarf mistletoe on the Forest are relatively specific to their hosts: Douglas-fir, larch, ponderosa pine, and lodgepole pine. Of most concern are the mistletoes that infect larch, Douglas-fir, and ponderosa pine, in that order. Most mistletoes and infected stands are easily recognized and effective management has occurred in the last two decades. Current policy of retaining large overstory trees regardless of disease infestation will limit the ability to sanitize stands of mistletoe infection. Where infected overstory trees are retained and a susceptible understory exists, level of stand infection can be expected to build rapidly.

Larch Dwarf Mistletoe

Larch stands throughout the Forest have a high level of infestation. Most stands with a larch component are infected and in mature to over-mature trees the level of infestation is at least 50%. There are a few large continuous areas of relatively healthy larch. These stands probably resulted from large fires that burned hot enough to remove the existing larch component. Removal of residual larch will remove the source of infection. Since large larch are likely to be retained regardless of mistletoe infection, effective management strategies are limited.

Douglas-fir Dwarf Mistletoe

Douglas-fir mistletoe also results in high levels of mortality in severely infected trees. This mistletoe is increasing in severity. Attempted fire suppression has greatly increased the proportion of fir on sites once in pine dominance. Also silvicultural treatments that left infected advanced regeneration has resulted in increased mortality and stand stagnation. Last year there was considerable Douglas-fir beetle (Dendroctonus pseudotsugae) activity in severely dwarf mistletoe-infected trees. Wildlife uses for mistletoe-broomed Douglas-fir have been recognized. There are management strategies available to retain some infected trees, yet prevent spread to portions of stands where infection is undesirable.

Western Dwarf Mistletoe

Pine, Baker, and Unity RDs all have ponderosa pine stands that are severely infected. This mistletoe results in poor form, slower growth, and increased hazard to crown fire. It is recommended that infected pine stands be sanitized prior to embarking on uneven-aged stand management, otherwise mistletoe infestation can quickly intensify. Uncrowded single-story pine stands are only slightly impacted and can easily be managed, even with moderate levels of mistletoe.

Lodgepole Pine Dwarf Mistletoe

Dwarf mistletoe in lodgepole pine is widespread and of less economic consequence than other dwarf mistletoes. In the area around the town of Granite, there are sites where it is causing deformity and mortality in young trees.

Action Taken

Activities that have a direct or indirect effect in reducing susceptibility of forest stands to insects and disease continue to be implemented on the Forest. These activities include tree planting, thinning and other tree stand improvement projects, fuel treatments, and harvest prescriptions.

Craig L. Schmitt, Blue Mountain Zone pathologist, and Donald W. Scott, Zone entomologist, collaborated to author and document a publication entitled, *Catastrophic Stand Conditions in the Blue Mountains: Discussion, Guidelines, and Rating System*. The publication provides a stand rating system for the Blue Mountains and utilizes a set of stand classifications to determine the imminence of catastrophic damage. This document will be updated in 1996 to better address the hazards of catastrophic wildfires.

Educational programs about forest diseases and insects are ongoing for field crews and silviculture staff.

The zone pathologist and entomologist assist in project-level planning to assure insect and disease effects are addressed to meet management goals.

Several pest models are available which assist managers in estimating losses and predicting stand damage due to insects and diseases. Pest models are expected to be used in helping determine future resource outputs for Forest Plan updates.

UTOOLS computer software is being used in watershed-level analysis. A subroutine, UPEST, has been developed that incorporates 14 insect and disease hazard rating models. Based on UPEST analysis, pixels

across an entire planning area can be rated for major insect and disease hazard levels, to assist in large scale planning efforts. UPEST analysis was used on all the watershed analyses done on the Forest in 1995. UPEST analysis is likely to also be used for determining Forest-wide risks in the Forest Plan update.

Action to be Taken

Continue to monitor defoliator populations in order to have early detection of possible population rebounds.

Silvicultural activities that manipulate stand density, species composition, and stand structure continue to be important in building resilience to pest damage.

Pre-fire suppression forest conditions are considered "baseline" in terms of insect and disease levels and activity.

The concern for changed biological conditions and the potential reduction in timber yield due to insects and disease in forest stands has been submitted to the Regional Forester as a potential issue to be considered in a Forest Plan adjustment. Further evaluation will be conducted in support of the Forest Plan adjustment process. The adjustment process will be undertaken and will be based in part on the ICBEMP and its EIS. RF Amendment 2 has been implemented to maintain management options until then.

Monitoring Item 4
Timber Offered for Sale

Goal

To provide for the production of wood fiber consistent with various resource objectives, environmental requirements, and economic efficiency. To offer for sale up to an average of 141 MMBF ASQ (allowable sale quantity) and 205 MMBF TPSQ (timber sale program quantity) annually as averaged for the decade.

Purpose of Monitoring

To measure the success in offering cubic foot volume and species of chargeable timber established by the Forest Plan ASQ. FY 1990 through 1995 display volume offered in million board feet.

Threshold of Variability

Is the amount of timber offered for sale within $\pm$10% of the planned decade average?

Results and Evaluation

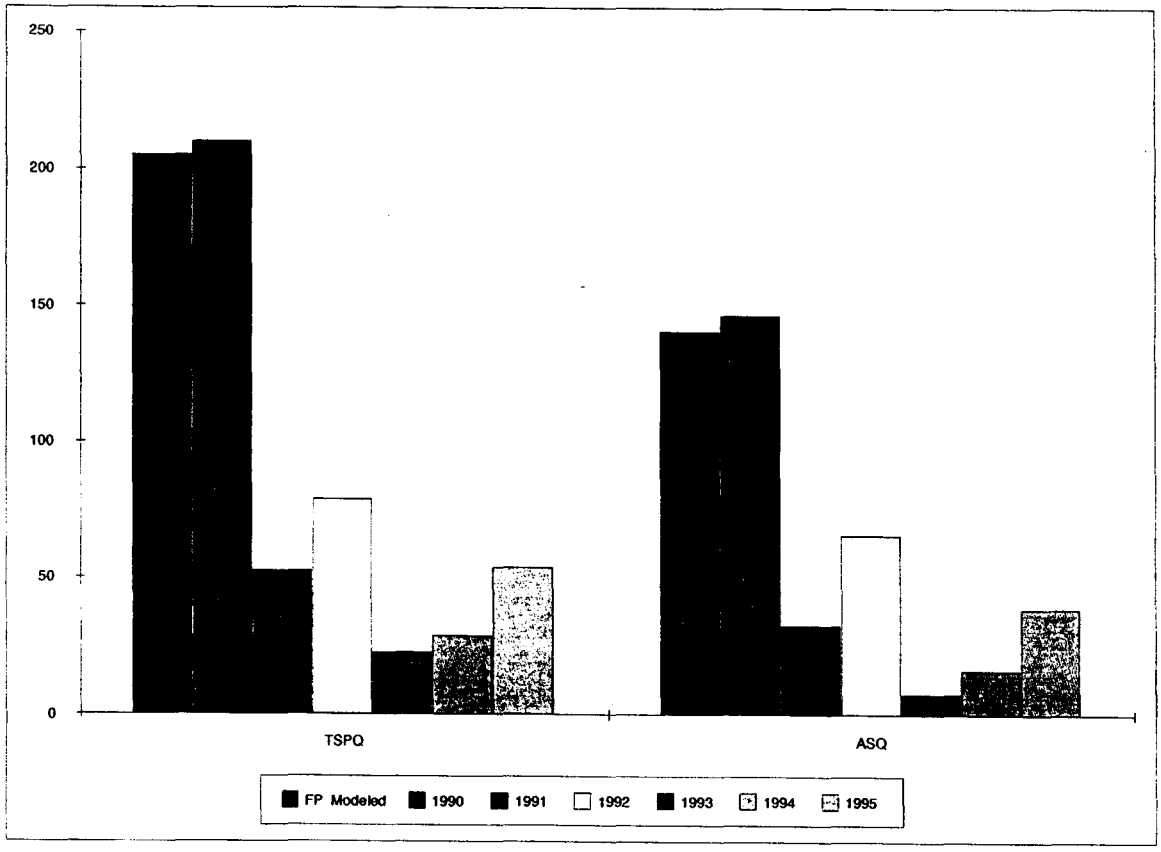
Cubic foot volume will not be reported for 1995. The STARS database is used to generate this information; cubic volume information is not available for 1990 through 1995 in the database.

The Forest received a target of 53 MMBF for the fiscal year and funding to analyze, prepare, and offer this volume. The Forest offered for sale the target volume. The target volume was less than the planned decadal average TSPQ and ASQ identified in the Forest Plan.

TIMBER OFFERED FOR SALE						
	Forest Plan Annual Average		Target Assigned by Regional Forester		Volume Offered for Sale	
Fiscal Year	TPSQ MMBF	ASQ MMBF	TPSQ MMBF	ASQ MMBF	TPSQ MMBF	ASQ MMBF
1990	205	141	215	141	210	147
1991	205	141	227	141	53	33
1992	205	141	200	141	79	66
1993	205	141	133	120*	23	8
1994	205	141	70	17*	29	17
1995	205	141	53	39*	54	39
1990-1995 Average	205	141	150	100	75	52

* The Regional Office did not assign an ASQ target; this is the amount we estimated we would offer at the beginning of the fiscal year.

TIMBER OFFERED FOR SALE



ACRES AND MBF/ACRE OF VOLUME OFFERED FOR SALE		
	Acres	MBF/Acre
Forest Plan	24,400	5.8
Year 1990	40,399	3.6
1991	11,361	2.9
1992	21,590	3.1
1993	6,278	1.3
1994	8,299	2.0
1995	11,732	2.1
1990-1995 Averages	16,610	2.96

Many factors continue to indicate the need to reassess the Forest Plan ASQ levels. Refer to the 1993 Monitoring and Evaluation Report for the Wallowa-Whitman National Forest for a more complete discussion.

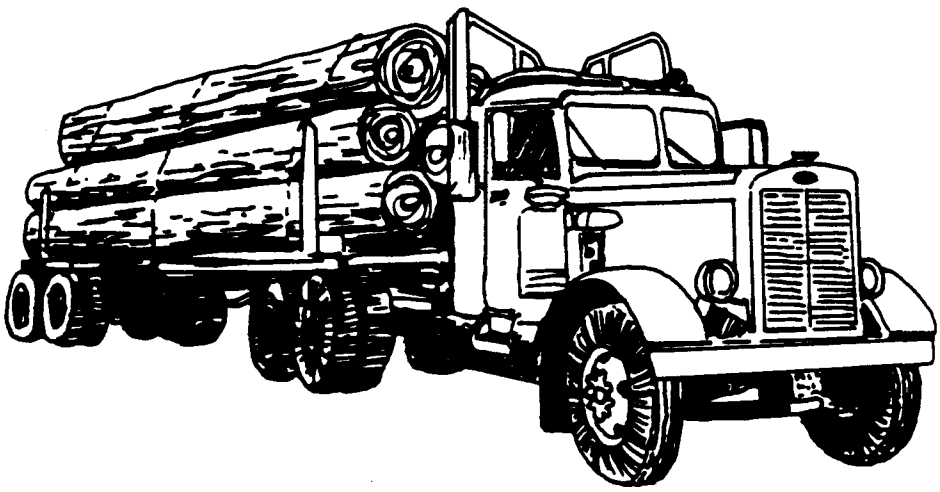
In addition the Regional Forester's interim approach for sale preparation (RF Amendment 2) was formally adopted through the NEPA process as an amendment to the Forest Plan. This amendment will be considered management direction until the ICBEMP EIS is released. The amendment places limitations on the size and distribution of trees that may be harvested. These assumptions are different than those used during the calculation of the ASQ in the Forest Plan.

The established threshold of variability is exceeded.

Action to be Taken

Until the ICBEMP assessment and EIS are completed, the Forest will continue to prepare timber sales following Forest Plan S&Gs, RF Amendment 2, PACFISH, and INFISH. When the EIS is completed, the Forest will evaluate the extent of change needed to the existing Forest Plan.

Continue working toward an accurate estimation of a sustainable harvest level consistent with other resource objectives.



Monitoring Item 5
Silvicultural Harvest Methods

Goal

To provide information regarding the harvest of wood fiber consistent with various resource objectives, environmental requirements, and economic efficiency.

Purpose of Monitoring

Measure area affected by timber sale activities by species group, management area, and silvicultural harvest method as specified in the Forest Plan.

Threshold of Variability

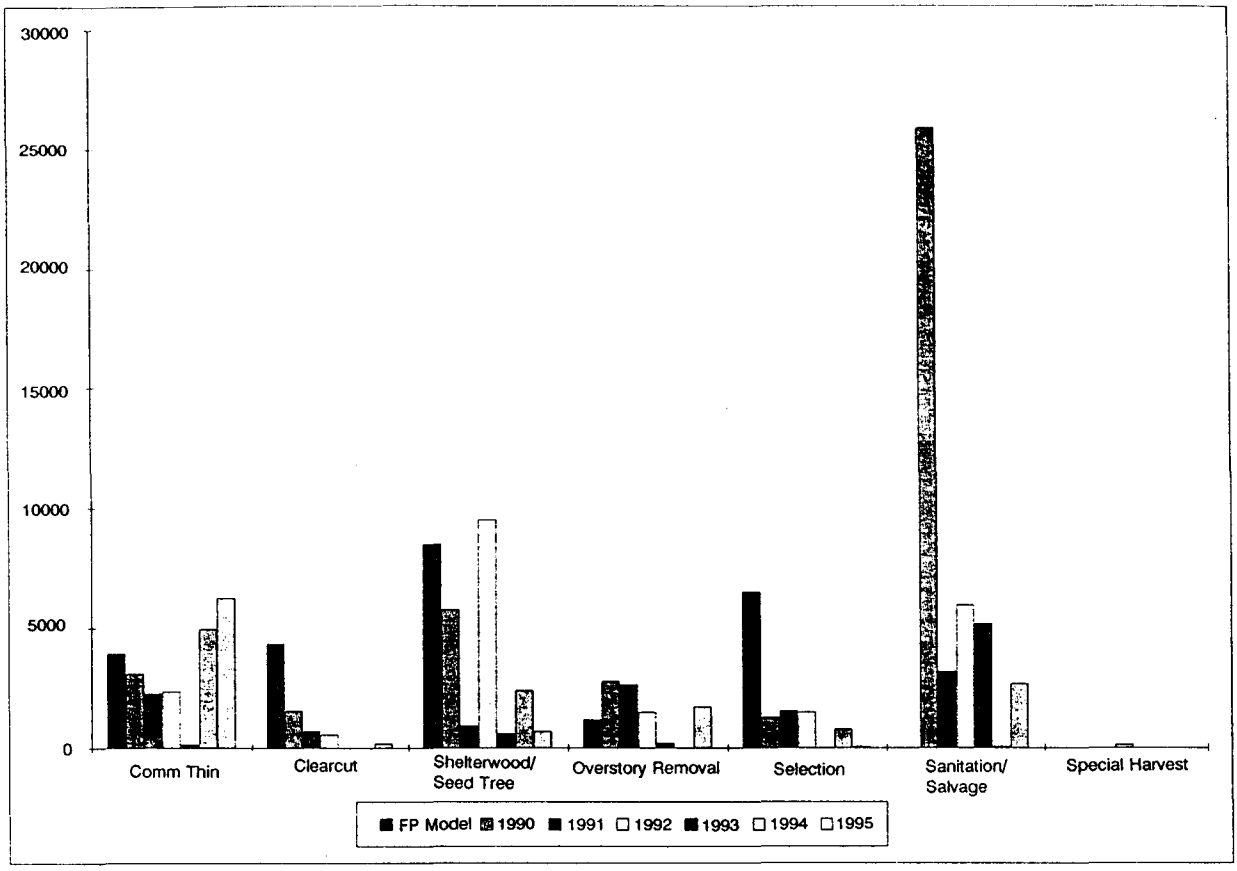
If there is greater than 20% deviation from the planned level in any harvest method category.

Results and Evaluation

The following table and graph display the area involved (by harvest type) for timber sales offered during the period 1990 through 1995.

Area Involved in Timber Offered for Sale Reported by Harvest Type					
Harvest Method	Forest Plan Assumptions (Acres)/Treated Annually	Sold (Acres)		Comparison to Forest Plan Assumption (Acres)	
		1995	1990 - 1995 Average	1995	90 - 95 Total
Commercial Thinning	3,900	6,286	3,194	+2,386	-4,234
Clearcut	4,300	211	518	-4,089	-22,693
Shelterwood/Seed Tree	8,500	729	3,333	-7,771	-31,002
Overstory Removal	1,200	1,715	1,475	+515	+1,647
Selection	6,500	110	884	-6,390	-33,695
Sanitation/Salvage	0	2,681	7,168	+2,681	+43,013
Special Harvest	0	0	37	0	+223
Total	24,400	11,732	16,610	-12,668	-46,741

ACRES AFFECTED BY TIMBER SOLD



In 1995, the Forest offered timber for sale for cutting units covering an area of 11,732 acres; this equates to 48% of the acreage assumed by the Forest Plan. During the recent six-year period (1990 through 1995), the Forest offered timber from cutting units covering an area of 99,659, equaling 68% of the acreage identified in the Forest Plan. The distribution of acres by harvest method is different than assumed in the plan. This reflects the shift away from regeneration harvesting and the increase in salvage harvesting due to fires and insect and disease activity.

The shift in harvest methods has created a substantial reduction in volume offered for sale. The Forest Plan estimated that 846 MMBF would be offered during the past six years, but sold 310 MMBF of sawtimber. The Forest Plan assumed an average harvest of 5.8 MBF/acre. In 1995 the Forest offered an average of 2.06 MBF/acre.

A number of assumptions in the Forest Plan are no longer valid for a variety of reasons. Significantly less regeneration harvest, increased levels of sanitation and salvage, and reduced total area treated are examples. These circumstances result in the inability to achieve the ASQ calculations in the Forest Plan.

Action to be Taken

Same as monitoring item 4.

Monitoring Item 6
Precommercial Thinning

Goal

Achieve acres of precommercial thinning as specified in the Forest Plan. Meet stocking standards.

Purpose of Monitoring

To ensure that those acres certified as meeting stocking standards are consistent with target acres in the Forest Plan.

Threshold of Variability

If the accomplished acreage varies from the planned acreage by 10% or more on a decadal basis.

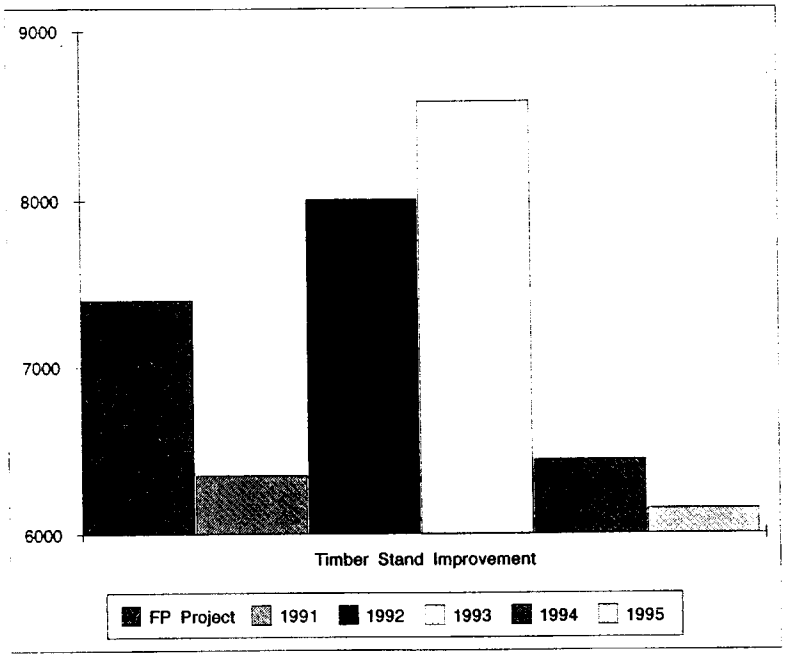
Results and Evaluation

The Forest Plan targets 7,400 acres of TSI (timber stand improvement) activity for completion annually, during the first decade. Acres treated in 1995 were as follows:

364 acres of release
5,788 acres of precommercial thinning
0 acres of pruning
6,152 acres of total timber stand improvement

Accomplishment in 1995 was 83% of the Forest Plan goal for TSI. Funding in 1995 was only 50% of requested needs. If fully funded according to the Outyear Needs Report, accomplishment could have been approximately 8,800 acres. With only 50% of the funding requested, accomplishment was 69% of the identified needs. The decadal average accomplishment to date is 7,108 acres or 96% of the Forest Plan goal and well within the threshold of variability.

ACRES OF TIMBER STAND IMPROVEMENT



Action to be Taken

Continue to monitor and emphasize to districts the need to report the acres meeting recommended stocking levels completely.

Review thinning goals in light of any changed desired future conditions coming from the Forest Plan update.

Monitoring Item 7
Harvest Units

Goal

Disperse harvest units and limit their size.

Purpose of Monitoring

To determine if the S&Gs for location, size, dispersal, and treatment of harvest units are adequate to assure compliance with other resource objectives, e.g., wildlife habitat, water quality, control of unwanted vegetation, and silvicultural prescriptions.

Threshold of Variability

If there is any identified failure to meet dispersion requirements.

Results and Evaluation

Forest-wide reviews of planned activities indicate a good understanding of Forest Plan S&Gs relating to location, size, dispersal, and treatment of harvest units. Fourteen monitoring check lists comprising timber sales, salvage sales, pole removal, and commercial firewood programs were reviewed to determine compliance.

Findings indicate that the Forest Plan S&Gs regarding size and dispersal of openings and state of vegetation are being appropriately implemented.

Action to be Taken

Continue to monitor.

Monitoring Item 8
Reforestation

Goal

Achieve reforestation, by natural and artificial means, to stocking levels established in the Forest Plan within given time frames.

Purpose of Monitoring

To measure stocking levels for each management area and silvicultural method, and to determine whether the levels were reached within the time frames assumed in the Forest Plan.

Threshold of Variability

If there is a greater than 20% plantation failure or more than 50% below prescribed stocking levels.

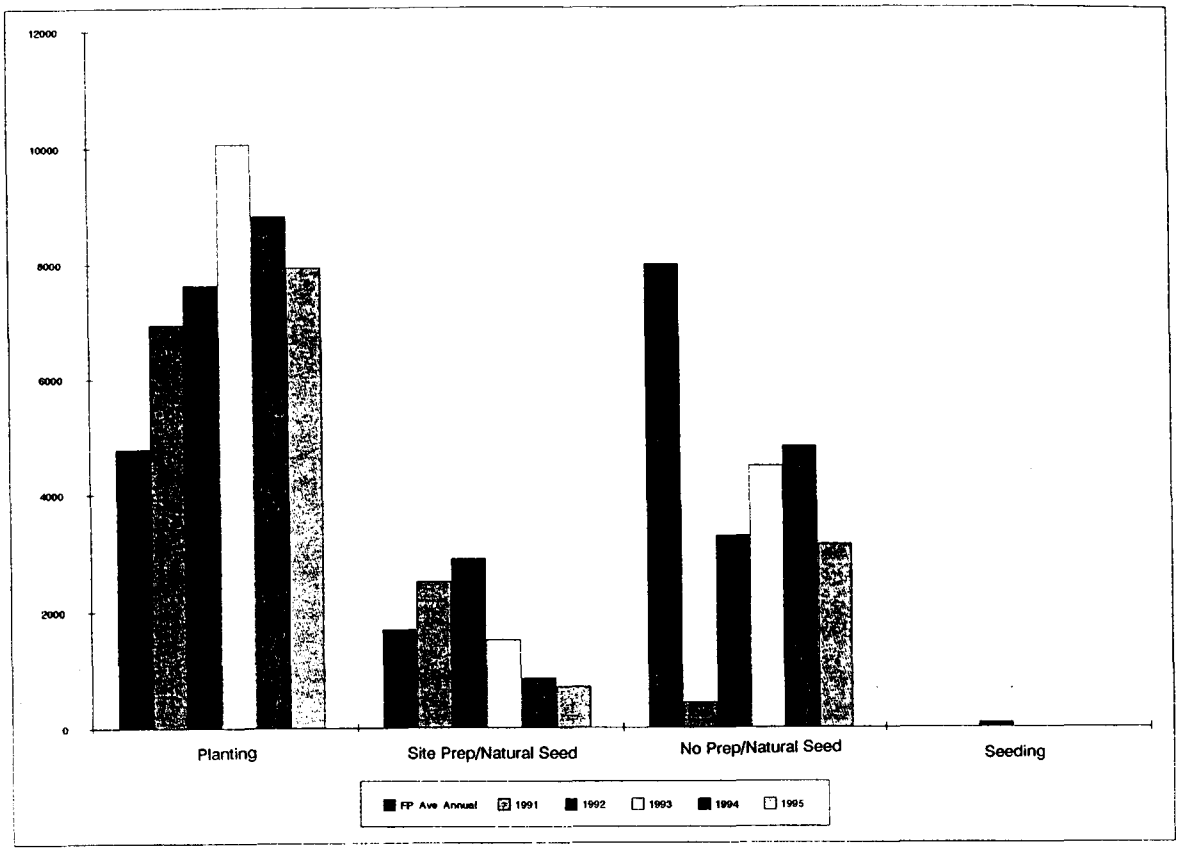
Results and Evaluation

An area is stocked to a satisfactory level when trees per acre meet the minimum or greater standards defined in the silvicultural prescription.

Reforestation accomplishment for 1995 is 81% of the Forest Plan goal. The following tables and graphs show the treatment methods used for reforestation compared to assumptions made in the Forest Plan.

Treatment Method	Average Annual Acres from the Forest Plan (Acres)	Acres Accomplished	
		1995	1991 - 1995 Average
Planting	4,800	7,943	8,281
Seeding	0	0	20
Site Preparation for Natural Seeding	1,700	719	1,703
Natural Seeding without Site Preparation	8,000	3,154	3,243
Total	14,500	11,816	13,247

ACRES OF REFORESTATION PRESCRIPTION



Reforestation success and the involved time frames are presented in the table below:

Annual Reforestation and Timber Stand Improvement Report Status of Reforestation After Final Harvest						
Year	Final Harvest Reported	Adjust. to Date	Revised Final Harvest	Adequately Stocked Acres %	Not Adequately Stocked Acres %	Not Adequately Stocked No Further Treatment Acres %
1988	6,775	2,975	9,730	8,095 - 83%	1,592 - 16%	43 - 1%
1989	3,654	8,427	12,081	8,538 - 71%	3,543 - 29%	0 - 0%
1990	25,318	-1,287	24,031	18,836 - 78%	5,182 - 22%	13 - 0%

As seen in the above table (Status of Reforestation After Final Harvest), 83%, 71%, and 78% of the acres that had a final regeneration harvest in 1988, 1989, and 1990, respectively, have adequate stocking in 1995. Many of the areas burned over by the wildfires in the mid-1980s, and subsequently salvaged, were planted with grass seed as part of the planned rehabilitation efforts. The resultant thick sod of grass adversely affected the survival of planted seedlings. These areas may need up to 20 years to adequately restock themselves naturally. Since some of these areas would not have been harvested had the wildfires not occurred, the Forest Service cannot justify attempting to reforest them every year.

The Plantation Survival and Growth Report for 1995 shows first year survival at 86%, within the Forest Plan goal of 80%. First year survival was much improved over last year due to a more favorable planting season and an overall cooler, wetter growing season with no prolonged periods of drought. Overall, stock quality was good, as indicated by general survival success so far, and growth standards for both ponderosa pine and Douglas-fir exceeding the 90% level.

First year survival in 1993 was 93%. The plantation and survival report for the same areas for 1995 shows third year survival has dropped to 71%, a significant effect of the prolonged drought prior to the 1995 season. The growing season in 1994 was extremely dry with both below normal precipitation and above normal temperatures throughout the summer and fall.

In 1995, 54% of the TOTAL acres reforested were satisfactorily stocked at the time of the third year exam. These areas were planted three years ago and may include some replant areas. Also in 1995, 81% of the area certified this fiscal year met prescribed stocking objectives with only one treatment. Ingrowth from natural regeneration may contribute to the stocking level which leads to certification and first time success.

Projected time frames for reforestation range from one to 20 years, depending on the forest vegetation type and reforestation method.

Action to be Taken

Continue to monitor.

Evaluate suitability for timber management for those burned areas where it is expected that reforestation will be a long-term process. Update suitability classification accordingly.

Evaluate plantation failure rates. Explore potential effects on economics and timber yield projections.

Evaluate the effect of an ecosystem management approach on the assumptions in the Forest Plan related to total anticipated area of reforestation for the remainder of the decade.

Evaluate the effects on the economics modeled in the Forest Plan resulting from a higher percentage of regenerated areas being planted and a lower percentage relying on natural seeding without site preparation.

Monitoring Item 9
Lands Not Suitable for Timber Management

Goal

Assure that lands are correctly classified according to their suitability for timber management.

Purpose of Monitoring

To determine if forest lands are correctly classified according to their suitability for timber management and to verify land suitability within ten years.

Threshold of Variability

If the suitable land base changes by 5% or more.

Results and Evaluation

The current Forest Plan is based on the following classification for land suitability:

- 1,411,925 acres classified as forested lands
- 1,090,072 acres classified as tentatively suitable forested land
- 820,500 acres classified as suitable forested land

A map of EVG (existing vegetation) has been installed in the GIS (geographical information system). All forest land has been mapped, and the associated stand data is stored in a data base.

The Forest has issued direction in the Timber Resource Planning Handbook, FSH 2409.13, outlining steps for field examination crews to use in identifying and recording land suitability.

The level of re-evaluation of land suitability is unknown. Suitability data has been recorded in the EVG database for 83 stands on the Wallowa Valley RD, 128 stands on the Unity RD, 3,646 stands on the Pine RD, and no stands for the remaining four districts. The stands with suitability data in EVG represent approximately 6% of the delineated stands on the Forest.

Action to be Taken

Continue to monitor and emphasize need for re-evaluation of land suitability during project-level planning.

Continue to update total acreage of suitable forest land as new information is obtained. Compare the suitable land acres on record at that time with the Forest Plan estimated acres for a trend in change and whether we are within the threshold of variability.

Determine the area of verified classification recorded in the EVG data base through queries to that data base.

Monitoring Item 10
Vegetation Management

Goal

The vegetation management program is effective in achieving resource management goals and complies with the Vegetation Management FEIS and mediated agreement. The need for vegetation treatments, particularly the application of herbicides and prescribed burning, is reduced.

Purpose of Monitoring

To determine if vegetation management is effective in achieving resource management goals.

To determine if there is a reduction in the need for vegetation treatments, particularly the application of herbicides and prescribed burning.

Threshold of Variability

No threshold has been established.

Results and Evaluation

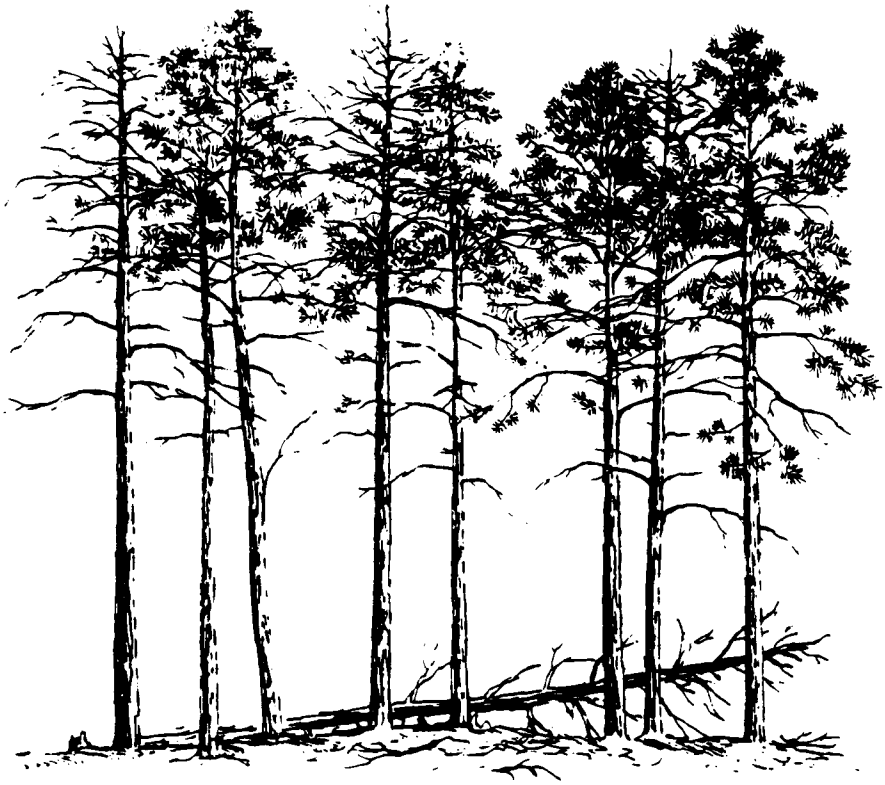
The final version of the Forests "Monitoring Guide for Vegetation Management Activities" was approved and published in June of 1993. The guide initiates a process to assure compliance with Forest Plan goals and the Vegetation Management Final EIS and its associated mediated agreement.

Effectiveness and accomplishment data has been collected as required by the guide for the past four years and is displayed in the following tables. The first table compares the herbicide and prescribed fire activities to the total program, revealing an increase in herbicide use, and a decrease in prescribed fire activities from 1992 to 1995.

Herbicide treatments will probably continue at a low level for the next few years while a backlog of difficult non-stocked sites are reforested and a more intensive noxious weed control program is conducted. The level of prescribed fire activity is uncertain based on the perceived need to increase this activity Forest-wide for ecosystem management needs, but at the same time follow the EPAs recommended air quality standards.

Comparison of Acres Treated by Herbicides and Prescribed Fire to Total Vegetation Management Treatments

Fiscal Year	Total Acres Veg Mgt Treatments	Ac Treated w/ Herbicides	% of Total	Ac Treated w/ Prescribed Fire	% of Total
1992	29,925	721	2%	17,455	58%
1993	9,698	972	10%	5,525	57%
1994	9,945	1,338	13%	5,201	52%
1995	9,089	1,654	18%	2,781	31%



The following table shows acres treated by various vegetation management methods and objectives.

Vegetation Management in 1995
Acres of Treatment
Treatment Method

Activity	Manual	Mech.	Biol.	Rx Fire	Chemical	Total
Silviculture:						
REF Site Prep	150	200		1,800	841	2,991
TSI Release	3,469	55				3,524
Tree Genetics	89	104			68	261
Research						0
Facilities Mtc:						
Rec Areas	7					7
Adm Sites	1				4	5
Range Impv			70		100	170
Noxious Weeds	440	6	40		641	1,127
Wildlife Hab Impv			22	981		1,003
ROW Mtc:						
Roads	1					1
Trails						0
Sp Use Permits						0
Easements						0
Ut Corridors						0
TOTAL	4,157	365	132	2,781	1,654	9,089
Percent by Treatment Method	46%	4%	1%	31%	18%	100%

Action to be Taken

Continue to monitor according to the procedure outlined in the Forest "Monitoring Guide for Vegetation Management Activities" and analyze the goals and objectives of prescribed fire in ecosystem management in light of the recommendations in the ICBEMP, the "Blue Mountains Ecosystem Restoration Strategy," and the "Rich Everett Report."

Monitoring Item 11
Transportation System

Goal

Provide open road densities consistent with Forest Plan guidelines in order to meet resource objectives for wildlife habitat, water quality, and a mix of recreation opportunities and to provide access for management.

Purpose of Monitoring

To verify that progress is being made toward meeting the open road density guidelines established in the Forest Plan. Once open road densities are reduced to Forest Plan levels, monitoring will be continued to assure that road densities described by the Forest Plan are maintained.

Threshold of Variability

If system design, road density, or maintenance fail to meet management area objectives.

Results and Evaluation

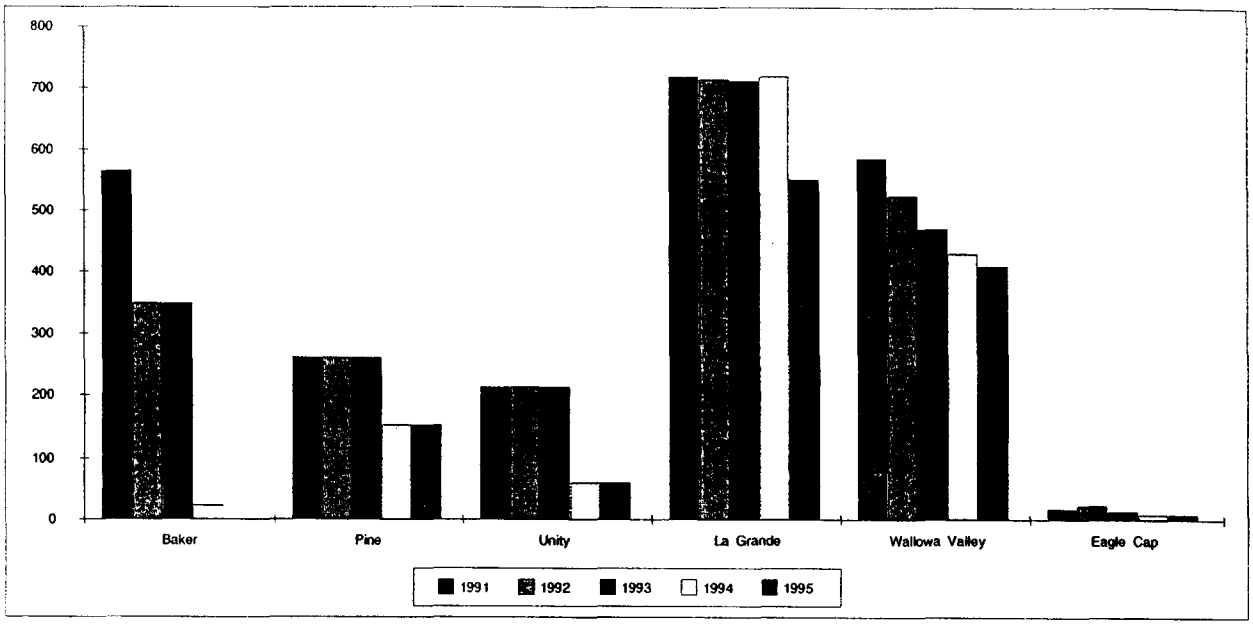
The following table and figure shows an estimate of open road miles relative to Forest Plan guidelines. Progress has been made toward closing roads, and more is planned for this field season. Considerable work remains to be completed.

Miles to Close to Meet Road Densities					
	By Year End				
District	1991	1992	1993	1994	1995
Baker	565	350	350	25	0
Pine	261	261	261	153	153
Unity	214	214	214	60	60
La Grande*	1131	1074	955	832	553
Wallowa Valley*	586	525	472	431	410
Eagle Cap	20	15	15	12	12
Totals	2,777	2,439	2,267	1,513	1,188

* Changes in numbers from previous years are due to additional roads being added to the inventory.

The above table shows attempted closures. Effectiveness of those closures is 50% or lower in some areas when considering miles of road closed. See associated affectiveness monitoring under this monitoring item.

MILES REMAINING TO CLOSE
OR OBLITERATE



Eagle Cap District has completed implementation of its access and travel management plan. Road miles that exceed Forest Plan guidelines are in locations where main roads travel through small portions of a given management area, and produce artificially high road densities.

Baker District has completed the initial implementation of its access and travel management plan, and now is putting effort into improving the effectiveness of the barriers that have been placed. Monitoring has shown that effectiveness is as low as 50% in some areas and averages around 60%.

On Pine District, implementation of the access and travel management plan will occur on the east half of the District this year.

Unity District will continue to make progress on implementing closures this year as decisions are made as to what roads should be gated versus closed with an earthen berm.

La Grande District made considerable progress this year, and has aggressive plans for closures in the 1996 field season. They were able to take advantage of several types of special funding to assist with accomplishing these closures.

Wallowa Valley District continued to make some progress toward meeting the Forest Plan density targets, but has a long way to go at the present rate. Wallowa Valley District has been accomplishing their access and travel management planning on a subwatershed basis as they do their ecosystem management project planning. This process has taken longer than the processes that the other districts have used, partly because of activities associated with the listing of the Snake River salmon. While project planning activities are increasing, it will still be many years before planning activities will cover the entire District so that access and travel management decisions can be made. If this is an unacceptable time frame, then a separate access and travel management planning process should be begun soon. This would speed up the progress toward

meeting Forest Plan density guidelines, especially if emphasis was placed on those areas where the guidelines are greatly exceeded.

Purpose of Monitoring

To determine whether road barriers (earth berms, guardrail barriers, etc.) are effective in keeping vehicles off blocked roads so that objectives of the Forest Plan can be met. Additionally, to determine which barriers are most effective.

Results and Evaluation

The following table shows information on closure effectiveness that was collected in 1995.

1995 Road Closure Effectiveness Summary

	Barrier Type					
	Earth Barrier		Natural		Gate/Guardrail	
District	No. Rds.	% Effectiveness	No. Rds.	% Effectiveness	No. Rds.	% Effectiveness
Unity						
Pine	61	82				
Baker	73	71			9	0
La Grande	817	99			91	23
Wallowa Valley	68	88	3	100		
HCNRA	17	82	5	100		
Eagle Cap						
Total	1036	95	8	100	100	21

The effectiveness is based on a sample and does not represent total effectiveness of the road closures.

Using natural materials to disguise or camouflage the entrance to the road continues to be an effective method of closure in some cases.

Most gates receive some type of use. Much of this use is by people who have a permit. If the responsible official is allowing use on these gated roads, resource objectives are probably being met. Roads with permitted use are not considered closed for the purpose of calculating Forest Plan open road densities. The installation and maintenance of gates is very expensive, and districts are looking very closely at where they are truly needed, and considering who will pay operation and maintenance costs.

Guardrail barriers have been found to be ineffective in many situations. On Baker District many of them are being replaced with earth berms.

Most road closures have been accomplished using earth berms. The following table shows approximate historical effectiveness for earth berms used for road closures on the Forest.

Historical Effectiveness of Earth Berms

	Percent Effectiveness By Year				
District	1991	1992	1993	1994	1995
Unity		63	54	57	-
Pine		68	46	46	82
Baker		51	66	65	71
La Grande		92	78	98	99
Wallowa Valley		86	87	97	88
HCNRA		98	96	100	82
Eagle Cap		100	95	100	-
Total	91%	86%	70%	89%	95%

Based on sample rate not consistent across districts and not constant between years.

Barrier effectiveness was approximately 90% at the time the Forest Plan began to be implemented. In 1992 the Baker RD began implementing a lot of closures, and effectiveness decreased. Over time, much has been learned about how to effectively close a road (e.g., location and number of berms). Many of the closures that were ineffective in 1993 have been reinstalled in a manner that has improved effectiveness. The Grande Ronde Zone has used experience gained by the Burnt Powder Zone to realize a high degree of success with initial closures. Effectiveness of earth berm closures has increased in the past 2-3 years. As access and travel management plans are completely implemented, resources can be concentrated on improving the effectiveness of existing closures.

A team appointed by the Forest Leadership Team has also been collecting some data and preparing a report on access and travel management on the Forest. The team found that barriers on longer roads tend to be breeched more often than those on short roads. Because of this, and because one breech can sometimes provide access to other roads, the percentage of effectively-closed miles will be less than the percentage of effective barriers.

Action to be Taken

Districts should continue to pursue all possible avenues for accomplishing access and travel management planning and implementing the travel restriction decisions.

Continue to monitor.

Currently the system used for tracking road densities does not incorporate information about the effectiveness of the closures. This would be a moot point if closures were near 100%. Since they are not, eventually either additional effort should be put into making the closures nearly 100% effective, or a system should be set up to take into account ineffective closures based on a subwatershed scale.

Re-visit road density S&Gs during the Forest Plan adjustment process.

Monitoring Item 12
Range Outputs

Goal

Within the constraints imposed by basic plant and soil needs, provide forage for utilization by wildlife and permitted domestic livestock.

Purpose of Monitoring

To determine if range outputs for permitted livestock are as projected in the Forest Plan, expressed in terms of AUMs (animal unit months), and to determine to what degree Forest Plan standards affect permitted outputs.

Threshold of Variability

If annual outputs (AUMS) for permitted domestic livestock fall more than 20% below permitted levels from the beginning of the preceding five years.

Results and Evaluation

The Forest Plan does not set specific target levels for outputs of permitted livestock AUMs. Instead it indicates that actual outputs will vary depending on the effects of implementing S&Gs from the Forest Plan and the development and implementation of AMPs (allotment management plans). These S&Gs include forage utilization standards, riparian standards, and others. The monitoring data will be compiled over a five-year period to average annual fluctuations in permitted numbers and to track long-term trends.

In 1995, there were 160,255 AUMs under term grazing permit and an additional 13,063 AUMs under term private land permit (which authorize use on private land waived to the government for management within an established allotment) on the Forest.

There was one decrease in permitted numbers for a total of 5,558 AUMs. This decrease was related, in part, to implementation of the Forest Plan and S&Gs in the HCNRA CMP. In addition, there were two other permit reductions related to failure to comply with the terms of the permit. These two reductions totalled 763 AUMs. Removal of livestock on a few pastures and allotments was required when the prescribed utilization standards were reached prior to the established off date for the term permit or when mitigation requirements for the Snake River chinook salmon were met. These were not permanent reductions in permitted livestock.

This level of permitted grazing is within the threshold of variability.

Action to be Taken

Continue to monitor.

Monitoring Item 13
Forage Utilization

Goal

All grazing allotments will implement the Forest Plan utilization standards through AMPs. This goal has been refined by Washington and Regional Office direction to indicate that until the Forest is able to develop

AMPs for allotments, the utilization standards will be progressively implemented through inclusion in AOPs (annual operating plans).

Purpose of Monitoring

To ensure Forest Plan utilization standards are being implemented through the AMP and AOP and are being enforced on the ground.

Threshold of Variability

If more than 10% of the allotments reviewed experience utilization, by any species of animal, exceeding the Forest Plan or AMP standards by more than 5%, as an average of use on key areas within a pasture.

Results and Evaluation

Forest Plan utilization standards are being incorporated into each AMP developed. Due to insufficient funding, the AMP process has been slower than projected in the Forest Plan. Therefore, the Regional Office has directed utilization standards be incorporated into the AOPs. This has been completed for all allotments although modification to the standards, to reflect updated information, continues.

Utilization monitoring, complete with documentation, occurred on a total of 374 pastures within 121 active allotments. A few pastures were grazed more than once during the year and were, therefore, monitored and reported as two pastures. In addition, there were 22 allotments in a vacant status plus one allotment managed by the BLM (Bureau of Land Management).

A total of 1027 separate monitoring data collections were made during 1995 for forage and browse utilization. Of these, 571 occurred within riparian areas.

Mitigation measures to ensure that grazing management activities would not adversely affect the spring/summer chinook salmon of the Snake River basin included a continued reduction in some existing utilization standards on specific allotments during 1995.

The following table shows results of forage and browse utilization monitoring.

Forage Utilization	
	1995
Estimated Total Pastures Grazed by Permitted Livestock	464
Total Pastures Monitored	374
% of Monitored Pastures Meeting Thresholds	87%

An additional 9% of the pastures were monitored but monitoring was not sufficient to guarantee that the standards were met. In many of these instances, it is probable that the standards were met.

Four percent of the pastures monitored did not meet standards for a variety of reasons.

The threshold of variability was not exceeded for 1995.

Some pastures are not yet receiving adequate utilization monitoring. This situation is usually limited to small allotments consisting predominantly of private lands or other lower priority allotments or pastures and results from insufficient funding for range monitoring.

Action to be Taken

Forage and browse utilization monitoring will continue to be emphasized as funding and priorities permit.

Continue to increase emphasis on follow-up actions necessary to prevent further utilization once the standard is reached.

Continue to emphasize effectiveness monitoring to ensure that utilization standards being applied are in fact resulting in resource conditions and trends consistent with Forest Plan goals, with special emphasis on riparian conditions.

Monitoring Item 14
Range Vegetation Conditions

Goal

The Forest goal is to have all significant areas of suitable primary and secondary range, including riparian areas, in satisfactory condition with a stable or upward trend. Satisfactory condition is defined as: forage condition is fair or better with a stable trend and allotments are not classified as having basic or other resource damage.

Purpose of Monitoring

To ensure that suitable primary and secondary ranges are in satisfactory condition with a stable or upward trend.

Threshold of Variability

By the year 2000, at least 85% of the suitable primary and secondary range is in satisfactory range forage condition and no more than 5% of the allotments are experiencing adverse impacts on resources other than basic soil and water resources. By the year 2000, no more than 5% of the allotments are experiencing basic soil or water resource damage as defined in the Forest Plan and no more than 5% of the allotments are experiencing other resource damage (as defined in the Forest Plan) indicating riparian problem allotments.

Results and Evaluation

In order to evaluate this monitoring item, it is necessary to compare current data with previous data. This data collection and analysis is a process called "integrated range analysis." The process includes re-analysis of established long-term monitoring transects and plots as well as comparisons of maps and acreages compiled for an individual allotment to determine apparent condition and trend. The apparent condition and trend is based on a comparison of the existing plant community with the potential plant community as defined in guides developed by the area plant ecology program.

During 1991 through 1995, condition and trend data was collected on a total of 34. To date, this information has been summarized for 22 allotments for a total of 321,190 acres.

The following table reflects the findings for the areas where data were summarized in 1995 and the total-to-date for all areas inventoried and summarized since implementation of the Forest Plan began.

Range Vegetation Analysis		
	1995	Planning Period 1991-1995 Total-to-Date
Total Area Analyzed (Acres)	39,597	321,190
Suitable Primary and Secondary Range Analyzed (Acres)	35,573	173,311
Percent That Meets FP Condition & Trend Goals	81%	92%**

** The percentage relates to suitable primary and secondary range. It is estimated that the 147,879 acres of unsuitable range, non-range, and transitory range are also in satisfactory condition.

Forest Plan standards apply to the primary and secondary range categories because those are the areas where impacts relative to livestock grazing are most likely to occur.

Overall, for 1991 through 1995, a total of 321,190 acres have been analyzed including 173,311 acres of suitable primary and secondary range. Of the suitable primary and secondary range analyzed to date, 92% meets the Forest Plan goal of satisfactory forage condition with a stable or upward trend.

In addition, it is estimated that the 147,879 acres of unsuitable range, non-range, and transitory range are also in satisfactory condition.

Even with the strong emphasis on integrated range analysis, the current pace of analysis is inadequate to ensure up-to-date information for allotment management planning on a reasonable schedule. The shortfall primarily relates to inadequate funding for support such as fisheries, wildlife, and botany work.

There is a continuing need to define and implement a standardized riparian monitoring process that can identify "conditions" and relate them to impacting activities. Currently, there is a riparian/aquatic inventory that has been conducted on many Class I and II streams. The data from this inventory is not yet in a fully useable format nor have processes been devised to define riparian "conditions and trends." Some use is currently being made of a process developed by the BLM known as "proper functioning condition assessment." Continued use of this process will increase knowledge concerning riparian and aquatic conditions on the Forest.

Monitoring results indicate that range forage conditions are within the threshold of variability.

Action to be Taken

Continue to monitor.

Report findings on riparian rangeland and upland rangeland separately in order to provide a better link to other monitoring items. This will be initiated as soon as classification systems and processes are in place

to allow for inventory of riparian plant communities. Establish processes to define riparian "condition" in terms of impacting activities.

Develop process to allow for reporting currently existing riparian data.

Monitoring Item 15
Range Improvements

Goal

Improve management of range vegetation through installation or implementation of range improvements included in the development schedule of AMPs.

Purpose of Monitoring

To determine that range improvement projects are being accomplished in accordance with annual program planning.

Threshold of Variability

If the accomplishment of annual range improvement targets falls more than 10% below the assigned output.

Results and Evaluation

Structural and non-structural improvements are planned and funded through a variety of sources. Based on need and on funding availability, targets for completion of improvement work are assigned to the ranger districts. In 1995, targets were assigned for 111 structures (a structure is defined as one water source, one-half mile of fence, one cattleguard, etc.). Actual accomplishments were 108 structures. Targets for non-structural improvements, including seeding and prescribed fire, totaled 506 acres. Non-structural improvements were completed on 175 acres. Most of the incomplete work was related to a prescribed burn that was not completed due to weather conditions.

The results are acceptable.

Action to be Taken

Continue to monitor.

Monitoring Item 16
Allotment Management Planning

Goal

Develop and implement AMPs that fully meet the S&Gs of the Forest Plan for all allotments.

Purpose of Monitoring

To determine if priority allotments are receiving the highest emphasis of integrated range analysis and AMP development. To determine if AMPs are being developed on schedule and to assure on-the-ground implementation in a manner that meets Forest Plan direction.

Threshold of Variability

If the AMP planning schedule, as developed by the Forest Supervisor, varies by more than two years for 10% or more of the plans. If any of the AMPs approved following approval of the Forest Plan fail to contain objectives and standards that fully implement the Forest Plan.

Results and Evaluation

Region 6 developed a program in 1991 to emphasize allotment management planning on the high priority allotments in the region. The Forest Plan had already developed and implemented a prioritization process that is used to generate a five-year planning schedule. This process and planning schedule are the basis for determining which allotments are most in need of analysis and planning, according to resource concerns. The allotments targeted for planning efforts are, with limited exceptions, those identified as highest resource priorities. The few exceptions are generally those allotments where planning had already been started or those where an opportunity has occurred that makes it reasonable to include the allotment in the schedule. The five-year schedule is revised annually, based on funding, accomplishments, and revisions in the priority schedule.

Many of the ongoing AMP efforts were placed on hold in 1995 because there was a change in priorities from development of AMPs to completion of NEPA decisions related to permit issuance. This change in priorities was a result of national direction. No NEPA decisions were completed related to permit issuance, although fourteen are in progress. The Rescission Bill of 1995 (PL 104-19) has mandated a return to the AMP/NEPA emphasis and further mandated that all allotments be scheduled for NEPA within a 15 year period. An average rate of 7 to 8 AMPs per year would be needed to meet this mandate. This would be slower than the rate of AMP completion projected in the Forest Plan but faster than the accomplishments over the past five years.

In 1995, the field portion of the integrated range analysis was completed on four allotments (including some begun in 1994 or earlier and completed in 1995). There was no specific target assigned for 1995. In the analysis process, information is gathered regarding the resources on the allotments and concerns about the condition or management of those resources.

There were no NEPA documents prepared for AMPs in 1995 because of the change in priorities discussed above. However, a total of 34 allotments are in some stage of the inventory and planning process and some analysis was completed for these planning processes.

Accomplishments for 1995 include:

Updates to AMPs for two allotments.

Completion of a NEPA process and decision concerning bighorn sheep and domestic sheep on the HCNRA. This decision will result in vacating two allotments and reducing permitted numbers substantially on another allotment.

One AMP NEPA decision remains in appeal status.

Allotment Management Planning						
	1991	1992	1993	1994	1995	Planning Period Total to Date
Allotments Analyzed [1]	9 [2]	1	15	7	4	36
NEPA Completed	1	7	5 [2]	1	0	14 [3]
AMPs Completed [1]	0	2	1 [4]	8	2	13

1 The Forest Plan projected accomplishment at 15 per year.
2 Pine Valley and Lockhart allotments are reported as two allotments. Analysis has resulted in creating six allotments and six AMPs from these two allotments.
3 This total includes five documents awaiting consultation with NMFS.
4 One AMP was completed but is currently under appeal.

Although the results show progress in the accomplishment of analysis and planning, the level of accomplishment remains too low to ensure the maintenance of up-to-date management plans on all allotments. Reasons for the low level of accomplishment include changing priorities as discussed above and substantial reductions in funding. The consultation process, appeals and litigation also result in delays and cost increases for many of the NEPA decisions. Accomplishments continue to vary by ranger district.

The threshold for this monitoring has been exceeded.

Action to be Taken

Continue to implement the Forest Plan utilization standards through the AOPs.

Modify the annual update of the Forest Plan allotment management planning schedule to reflect the requirements of PL 104-19 as well as actual budgets and accomplishments. Evaluate effects of the changed schedule on associated resources.

Continue to pursue adequate funding to accomplish allotment management planning in a timely manner.

Monitoring Item 17
Noxious Weeds

Goal

Management of noxious weed infestations according to the EIS for Managing Competing and Unwanted Vegetation, the Forest Plan, and applicable State laws and regulations.

Purpose of Monitoring

To determine if noxious weed infestations are being managed in accordance with the EIS for Managing Competing and Unwanted Vegetation, Forest Plan direction, the Forest-wide Noxious Weed Management Plan and EA, and applicable State laws and regulations.

Threshold of Variability

If the assigned targets are not met by 10% or more.

Results and Evaluation

During 1992, the Forest completed and implemented a Forest-wide integrated noxious weed management plan tiered to the Regional EIS for Managing Competing and Unwanted Vegetation. This plan set the stage for integrated weed inventory, decision making, and management of priority weed infestations and provides a strong emphasis on prevention. In 1994, the Forest completed an update to the 1992 NEPA decision to incorporate additional inventoried sites into the management program.

In 1995, the Forest had a target of 900 acres of treatment for noxious weeds. Actual accomplishment was 1091 acres. Herbicides were used on pre-approved treatment sites in accordance with the noxious weed management plan. The majority of the treatments accomplished in 1995 were by manual or chemical methods with some continuing biological treatment efforts.

Results for this monitoring item are acceptable.

Action to be Taken

Continue to monitor.

Increase monitoring for effectiveness of treatment actions and prevention actions in accordance with the Forest-wide integrated noxious weed management plan.

Continue work toward development of a Forest-wide data base linked to the GIS system to aid in storing and reporting information on noxious weed inventories, treatments (by method), treatment monitoring, and effectiveness monitoring.

Monitoring Item 18
Watershed Standards, Guidelines and Best Management Practices

Goal

Maintain or improve the unique and valuable characteristics of riparian areas and floodplains. Maintain or improve water quality and quantity, wildlife habitat and fish habitat within riparian areas and streamside management units. Meet or exceed State water quality standards.

Purpose of Monitoring (Implementation)

To determine if watershed S&Gs and BMPs (best management practices) are being properly implemented within each project area. Implementation of S&Gs and BMPs related to riparian area cumulative effects are being reported under this monitoring item instead of under monitoring item 19. Implementation of S&Gs and BMPS related to peakflow/lowflow is being reported under monitoring item 20.

Threshold of Variability

Evaluation is required when appropriate S&Gs or related BMPs (a) were not considered and incorporated in the project design phase, or (b) were not properly implemented during project implementation.

Corrective action is required when improperly implemented S&Gs or related BMPs results in a violation or impending violation of applicable State and Federal laws, regulations or memoranda of understanding

affecting surface water and ground water quality, floodplains, wetlands, riparian areas, riparian area-dependent threatened or endangered species, or water rights.

Results and Evaluation

Monitoring of the implementation of watershed S&Gs and BMPs occurred at three levels.

Level One

This type of monitoring occurred during the planning phase of projects to determine if the S&Gs and BMPs were considered and incorporated into the design of the project. Of the 47 projects formally reviewed (and more than 25 other projects reportedly reviewed) during the planning phase, most watershed S&Gs and BMPs were properly considered and incorporated into project design. The threshold of variability for at least one S&G was exceeded for the projects listed below.

SVRR Extension

Wildlife S&G 2 and Watershed S&Gs 1, 2, 14, 16, 17a, 17b, and 22 were not appropriately addressed. The EA did not adequately address floodplains, wetlands, flood hazard, water developments and related water rights, and wetland-dependent non-PETS wildlife under Affected Environment. It did not adequately address effects of the proposed action on floodplains, wetlands, wetland-dependent non-PETS wildlife, water developments, and water rights (e.g., wildlife ponds and an adequate water supply for the train engine).

Road Erosion/Road Density

Open road density goals were reported as unattainable in Irish Quartz Timber Sale and Washington Gulch portion of Washington/Watershed EIS. Correction of road design, drainage and erosion problems were reported as beyond the scope of these two projects and Dutch/Wolf Timber Sale.

Use of Heavy Equipment in Riparian Areas

Seven mining projects were reported to include use of heavy equipment in riparian areas: California Gulch, EOMA Placer, Lead Lode, Pardner Lode/Placer, Pinecrest Lode, Riley Testing, Salmon Creek Placer. Although no information was provided on the monitoring sheets, it is presumed these intrusions qualified under the exception clause of Watershed S&G 22 which requires appropriate mitigations.

Water Use and Rights

Development and/or use of water was reported for six mining projects: California Gulch, Centennial Placer, EOMA Placer, Pardner Lode/Placer, Pinecrest Lode, Salmon Creek Placer. The check list for Watershed S&G 31 had items checked "not applicable," which suggests the operator did not need a water right. No statement was made on the monitoring sheet whether the operator had a water right, was filing for a water right, qualified for an exempt water use, or was using non-public waters.

Level Two

This type of monitoring occurred during the contract/permit administration phase to determine if S&Gs and BMPs were implemented. Although all projects are monitored, only a portion of the monitoring is designed to provide information for aggregation to the Forest level, such as forage utilization reported under monitoring item 13.

Generally watershed S&Gs and BMPs were implemented for the monitored projects and were within threshold. One formal and 20 other active-project monitoring reports were submitted; the threshold of variability was exceeded for at least one S&G for six projects. The BLM "Process for Assessing Proper Functioning Condition" was used to evaluate streams in ten livestock allotments. Some streams in the Big

Creek, Chesnimnus (Alder Creek area), Marr Flat, Pittsburg, Snow Creek and West Fork Burnt River (Sisters Creek area) Allotments were determined to be "functioning at risk," indicating that riparian area and water quality objectives were not being met. Streams in the Snow Creek and West Fork Burnt River Allotments were reported to be in an upward trend. In Snow Creek Allotment, the cause was placer mining operations, not livestock grazing.

Level Three

This type of monitoring occurred during post-project field reviews by interdisciplinary teams to determine if S&Gs and BMPs were implemented. Two projects were visited where all applicable S&Gs and BMPs were evaluated at some level. Six other projects were visited where some watershed S&Gs and BMPs were evaluated. Generally, watershed and related S&Gs and BMPs were implemented for the eight monitored projects and were within threshold. The threshold of variability was exceeded for some aspect of only one project, the North Fork Burnt River ORV (Off-Road Vehicles) Trail Crossing, where a stream ford had been installed instead of a bridge.

Action to be Taken

Level One

SVRR Extension

Soil, water, and wildlife specialists will be involved in the design and implementation phases of the project, to ensure that the identified watershed concerns are properly addressed and that suitable mitigations are implemented. Ensure that required State permits (water rights, dredge/fill) are obtained before construction begins.

Road Erosion/Road Density

Correct non-project related drainage and erosion problems as capital improvement funds become available. See monitoring item 11 for information about road density.

Use of Heavy Equipment In Riparian Areas

Revise reporting for Watershed S&G 22 to reflect the exception clause.

Water Use and Rights

Revise reporting under Watershed S&G 31 to obtain desired information for minerals, range and other projects.

Level Two

Marr Flat and Pittsburg Allotments: PFC (proper functioning condition) data is being used in EAs to revise management direction for AMPs.

Chesnimnus Allotment: Construct three-way cattle/elk exclosure along Alder Creek and monitor changes in riparian vegetation.

Snow Creek and West Fork Burnt River Allotments: PFC data is being used during range reissuance to formulate future management direction for these livestock allotments.

Level Three

North Fork Burnt River ORV Trail Crossing: The stream ford is being replaced with the bridge as required in the EA.

Purpose of Monitoring (Effectiveness)

To determine if Forest Plan watershed S&Gs and BMPs are effective in meeting project objectives and State water quality standards.

Threshold of Variability

Evaluation is required when Forest Plan S&Gs and BMPs fail to meet State water quality standards and protect beneficial uses, or fail to meet other watershed protection or improvement objectives.

Corrective action is required for all projects and for Forest Plan S&Gs or BMPs that fail to meet State water quality standards. For other monitoring questions, a 5% or more deviation (less than or equal 95% success rating) from the planned outcome will trigger corrective action.

Results and Evaluation

No studies were completed in 1995. Less monitoring was done in 1995 than in 1994 due to lower budgets.

Water Temperature Monitoring

Hydrologists and fisheries biologists collected water temperature data across the Forest in 1995 using mostly continuous recording datapods and hobo thermometers. The data is being used to determine baseline water temperatures, to determine if stream water temperatures exceed state standards designed to protect cold-water fisheries, and to evaluate effects of wildfire and Forest management activities, including livestock grazing, roads, mining and timber harvest. Some data is being summarized in annual reports, which are on file at the district offices. Interpretive reports will be written when sufficient data is collected.

An example of on-going baseline/trend monitoring is La Grande RD where water temperatures were collected using 42 continuously recording dataloggers and 24 hobo thermometers. Some examples of on-going studies across the Forest were listed in the 1994 report which is on file at the Supervisor's Office.

Turbidity/Suspended Sediment Monitoring

Hydrologists and fish biologists collected turbidity or suspended sediment samples at many sites on several ranger districts in 1995. The data is being used to determine baseline turbidity and suspended sediment, and to evaluate effects of Forest management activities in relation to state water quality standards. Some turbidity and suspended sediment data is being analyzed and summarized in annual reports, which are on file at the district offices. Interpretive reports will be written when sufficient data is collected. Some of the more important on-going studies were listed in the 1994 report on file at the Supervisor's Office. Below are examples of some new studies begun in 1995:

On La Grande RD, turbidity/suspended sediment samples were collected at three sites with ISCO water samples from March through December 1995. This is the first year of data collection using ISCOs. The data collection sites are gaging stations in Upper Meadow Creek, Lower Meadow Creek and the Grande Ronde River at Woodley Campground. Turbidity grab samples were also collected at 30 sites in the Upper Grande Ronde River drainage and at 10 sites in the Catherine Creek drainage from February through November 1995. Turbidity samples were continued throughout the summer this year to establish baseline turbidity values.

On Unity RD, baseline turbidity and suspended sediment data was collected at 23 locations. One of the study sites is the 1994 Ironside Fire area. This and other baseline data collected on King Creek and Middle Willow Creek are being used to monitor effects of private-land logging activities on National Forest Land, the effects of the Ironside Fire, the effects of riparian area improvement projects, and the effects of a rain-on-snow induced debris flow in King Creek that originated on private logged land in the Ironside Fire area.

Turbidity samples were collected above and below 13 active mining operations to determine if BMPs were keeping turbidity levels below the standard cited in OAR 340-41-765(2)(c). One of the 13 operations exceeded the standard. The operator was contacted and the problem was corrected.

Baseline turbidity and suspended sediment data were also collected at various locations along and below Pete Mann Ditch to monitor the effects of the ditch outflow on the North Fork Burnt River.

Stream Discharge Monitoring

Streamflow data is an essential component of many monitoring programs. The data is required for certain interpretations of water quality data, such as water temperature, suspended sediment and turbidity. It is also used to define the hydrologic regime of a watershed and to monitor the effects of vegetation management and wildfires on quantity, timing and duration of streamflow. Some data is being summarized in annual reports. No interpretive reports are planned at this time. See monitoring item 20 for a list of active stream gaging stations.

Road Drainage

Each year road maintenance engineers, hydrologists, soil scientists and fish biologists monitor the effectiveness of many existing road drainage structures and the water handling characteristics of road surfaces. This occurs as part of regular road maintenance activities, transportation system reviews related to timber sales or capital investment projects, emergency road repairs, and special monitoring projects.

Many pre-Forest Plan roads were not designed to maintain pre-road water quality. Road-related turbidity and sedimentation problems can be observed in many streams across the Forest. Some examples of this type of effectiveness monitoring, and of culvert and road surface drainage improvements that resulted from this type of monitoring, were reported in the 1994 monitoring report. Although this type of monitoring was done in 1995, none was compiled in a format suitable for reporting under this monitoring item.

Miscellaneous Effectiveness Monitoring Projects

This includes baseline, trend, and/or BMP effectiveness monitoring monitoring at sites affected by management activities (e.g., mines, water developments, trails, livestock, prescribed fire) and by natural events (wildfire, floods) that do not fit under other listed monitoring topics. Some of the more important on-going studies were listed in the 1994 report on file at the Supervisor's Office. Below is an update for one of these projects.

During the spring of 1994, the Allen Canyon Canal failed, resulting in erosion of a waterbarred skid trail and sedimentation into Little Bear Creek. A hydrologist completed a field review and recommended changes to the special use permit to reduce the probability of future canal wall failure. A report is on file at Eagle Cap RD. During 1995, a letter was written to the Allen Canyon Canal association documenting corrective action to be taken prior to the 1995 operation season.

One new project was reported for 1995. Baseline fecal coliform data collected from 5 major Burnt River tributaries showed fecal coliform levels to be far below the state standard of 200 meq/100 milliliters. Data and a summary report is on file at Unity RD. No further monitoring is planned.

Action to be Taken

Continue to monitor. Prepare summary reports when monitoring is complete.

Monitoring Item 19
Riparian Area Cumulative Effects

Goal

Maintain or improve the unique and valuable characteristics of riparian and aquatic ecosystems, particularly the riparian vegetation and stream channel characteristics that influence water quality, wildlife habitat and fish habitat.

Purpose of Monitoring (Effectiveness)

To determine if desirable riparian vegetation and stream channel characteristics of riparian and aquatic ecosystems are being maintained over the long-term, or if in poor condition, are being improved after proper implementation of appropriate S&Gs and BMPs.

To determine if trends in riparian area condition can be detected by and predicted from evaluation of data collected by Region 6's standard stream survey method.

To determine if models can be used to accurately predict current and future changes in riparian area condition and related effects on water quality, wildlife habitat and fish habitat.

Threshold of Variability

Three specific threshold questions must be answered for long-term monitoring sites (Forest Plan, page 5-36):

1) Does aquatic habitat have a HSI (habitat suitability index) that is at least 90% of the natural potential HSI? (MA 18 S&G 4).
2) Does riparian cover have a value that is at least 80% of the natural potential for the area? (Wildlife S&G 1).
3) For channel and riparian areas that are presently below the 90% and 80% standards, is the rate of condition improvement such that a transition potential may be obtained within 20 years?

Results and Evaluation

These monitoring items require long-term studies. The purpose of the studies listed below is to collect baseline and trend data. Trends may be apparent in as little as one to two years, or may not be apparent for five to ten years. Data may be quantitative, qualitative (such as photos), or both.

Only a few studies have yielded sufficient data so valid comparisons can be made with the thresholds of variability.

Long-Term Monitoring--Riparian Area Exclosures

Thirteen long-term riparian area cumulative effects monitoring sites have been installed across the Forest to assess the impacts of past and on-going livestock grazing and/or other impacting activities on riparian ecosystems. Exclosures study sites include: Clear Creek (Baker RD); Milk Creek, Limber Jim Creek (La Grande RD); Goose Creek-4 exclosures, Meadow Creek, Fish Creek (Pine RD); Trout Creek, East Camp Creek, Camp Creek (Unity RD); Elk Creek, Peavine Creek, Devils Run Creek, Big Sheep Creek (Wallowa Valley RD). Each study site includes paired transects, with the control located in a livestock or big game

exclosure. Five other exclosures (3 on Meadow Creek, 1 on McCoy Creek, 1 on West Chicken Creek) on La Grande RD are being used for long-term cooperative PNW studies.

Riparian area cumulative effects monitoring also occurs at other exclosures. For example, during 1995, 140 fixed photo points were re-taken in exclosures on the north end of the Wallowa Valley RD, from Vigne Campground to Big Canyon. These photo points are shot every five years. The photos are available from the Wallowa Valley Zone Watershed Office. There is no written report. Another example was effectiveness monitoring of over 46.5 miles of streamside exclosure fences and 65 upland spring/seep exclosures. Corrective action was taken when needed to ensure that exclosure objectives were being met.

Long-Term/Short-Term Cooperative Studies

Meadow Creek Riparian Vegetation Recovery Study: The purpose of the study is to assess riparian vegetative recovery in response to big game and cattle grazing exclusion. Preliminary baseline/ effectiveness monitoring results have been published by OSU for the 1991-1994 study period. Cooperators are La Grande RD, Pacific Northwest Forest and Range Experiment Station, Bonneville Power Administration, and OSU Department of Rangeland Resources.

Meadow Creek Riparian Shrub Biomass Study: Baseline data collection began in 1994. Cooperators are La Grande RD, Pacific Northwest Forest and Range Experiment Station, and OSU Department of Rangeland Resources.

Riparian Area Reference Reach Study: Baseline data collection began in 1992. The purpose of the study is to identify, characterize, and compare stream reaches in relatively unimpacted riparian condition with known impacted reaches. These "reference reaches" will be used as controls or baselines to develop Desired Future Conditions for instream and riparian area characteristics. Cooperators are La Grande RD, Pacific Northwest Forest and Range Experiment Station, Bonneville Power Administration, and OSU Department of Rangeland Resources.

Groundwater Flowpath/Riparian Vegetation Studies: Baseline/trend monitoring continued on two related cooperative projects. One project focuses on mapping groundwater flowpaths through three different riparian areas. The effects of the flowpaths on groundwater temperature and, ultimately, stream temperature will be evaluated. The second project is evaluating different riparian plant communities associated with specific groundwater depths. The riparian areas include intensively grazed areas. Cooperators are La Grande RD, Pacific Northwest Forest and Range Experiment Station, and OSU.

Other Long-Term Studies

Long-term riparian area cumulative effects monitoring also includes other special studies, such as photo-monitoring of unfenced riparian improvement projects, fire effects monitoring, monitoring of channel cross-sections, bank stability, sediment, and riparian area/water temperature relationships. Study sites include: Imnaha River (Eagle Cap RD and HCNRA); Goose Creek, East Pine Creek (Pine RD), East Camp Creek, North Fork Burnt River, Three Cent Creek (Unity RD), Little Sheep Creek, Big Sheep Creek (Wallowa Valley RD). Study sites include areas not in livestock allotments and riparian pastures. Some examples are discussed below.

Base line riparian area photo point and channel cross-section monitoring was established on the Imnaha River after the 1994 Twin Lakes Fire.

Baseline riparian area photo monitoring points were established on Three Cent Creek in 1994. The sale is planned for 1997. Photo monitoring will be done before and during the sale.

Baseline/trend riparian area photo point, and stream channel cross-section, pebble count and bank stability monitoring began on Little Sheep Creek in 1994 to determine if riparian vegetation and stream channel conditions will improve after implementation of S&Gs and BMPs in the revised Hydropower Plant operating plan.

Baseline/trend monitoring of riparian area vegetation re-establishment and associated stream water temperature changes has been collected in the Canal Fire are since 1989. The study will evaluate fire effects on riparian ecosystems and effects of loss/recovery of riparian streamside shade on water temperature.

Baseline surveys of 50 miles of trails in Eagle Cap Wilderness area were completed in 1994. The survey evaluated trail drainage and location with respect to potential for sediment movement, impacts to channel shade, and damage to adjacent wet meadows and riparian areas was evaluated. Only isolated segments of surveyed trails were found to have potential adverse impacts on riparian resources. A report written during the winter of 1995 is on file at the Wallowa Mountains Zone Watershed Office.

Six photo monitoring sites were established inside the Ironside Rehabilitation Area along King Creek and Middle Willow Creek. These photo monitoring sites were established after the 1994 Ironside Fire to monitor the cumulative effects of the wildfire, restoration activities and the King Creek debris flow of 1995.

Monitoring of Riparian Improvement Projects

These monitoring projects track the success of riparian plantations and natural recovery of riparian ecosystems after implementation of appropriate improvement practices. Some sites are fenced to exclude livestock. Preliminary results of some studies have been reported.

Trend monitoring continued at BPA (Bonneville Power Administration) restoration projects in Elk Creek to determine if BMPs are improving riparian vegetation and stream channels. Monitoring indicates slow but steady recovery of riparian area condition and function. A PFC rating was done on Elk Creek within the exclosure and immediately downstream. Within the exclosure, Elk Creek rated as "properly functioning condition". Downstream of the exclosure the channel rates as "functioning at risk with an upward trend".

Instream structures were monitored along Chesnimnus Creek using the Region 6 Structural Durability Protocol. No written report is available.

Trend monitoring was completed at a 1992 large woody material placement project in Telephone Gulch, a Class IV stream. Monitoring shows the large woody material to have been successful in stabilizing raw banks and capturing fine sediment during spring runoff. The channel shows signs of aggradation and the addition of woody material has reduced the occurrence of cattle trailing within the channel and along the banks. BMPs appear to be promoting desirable stream channel characteristics.

Baseline/trend monitoring was completed for riparian plantations. Approximately 2,650 deciduous shrubs and 7,300 conifers were planted within riparian zones on the Wallowa Mountains Zone in 1995. Approximately 4,607 deciduous shrubs from previous projects have survived. Plantation survival is monitored for three years and is estimated to be 70%. Effectiveness of 1995 riparian shrub plantations (ponderosa pine, Engelmann spruce, black cottonwood, alder, willow) was also monitored at two sites on La Grande RD. Survival at the South Fork Spring Creek site was approximately 72% and with 90% at the West Chicken Creek site. Survival rate of a riparian shrub plantation along Camp Creek (Whitney Valley) on Unity RD was estimated to be high, although some wildlife damage was evident.

Monitoring continued in the 1989 Tanner Gulch Fire area to assess the trend and effectiveness of riparian area improvement prescriptions. Monitoring includes taking photographs at 46 points every two years. Thirty-six photos points were monitored in 1994, with the remaining 10 in 1995. Analysis of the photo record shows that grass-seeding was successful and upland soil movement has been minimal since the initial overland flow event in 1989, and that in-channel structures have been successful at storing instream sediments.

Trend monitoring at the Alder Meadow//Trout Creek Restoration Area evaluated the effectiveness of log weirs constructed after the 1986 Huckleberry Fire. The majority of the existing structures are still effective at creating pools, storing sediment and widening riparian areas, which has improved fish habitat. Monitoring identified maintenance and additional improvement needs, which were partially completed in 1995.

Trend monitoring continued on the 1993 North Fork Burnt River Woody Material Placement/Riparian Planting Project. Monitoring indicates the placement of large woody material was successful in stabilizing raw banks and capturing fine sediment during spring runoff. Riparian vegetation survival is approximately 88%. Cattle grazing has been negligible for the past 3 years.

Stream, Lake, and Riparian Area Inventories

Fish-Bearing Stream Surveys: The Forest completed 159 miles of Level 2 and one mile of Level 3 stream/riparian area survey in 1995 using the Pacific Northwest Region Stream Inventory methodology. This methodology is used for inventory of Class I and II (fish) streams. Of an estimated 2,300 miles of habitat on the Forest, approximately 2,100 miles of anadromous and non-anadromous fish streams have been surveyed since June 1989. A revised summary report is being prepared in 1996 for all work completed through 1995. Level 2 surveys only collect data on existing condition. To be useful for comparison with Forest Plan standards and guidelines, for riparian area cumulative effects studies, and for prioritization of rehabilitation work, Level 2 data must be used within the framework of site potential. Data on site potential must still be collected for the inventoried streams.

Non-Fish-Bearing Stream Surveys: The Forest completed Level 2 stream/riparian area surveys in portions of five project areas in 1995 using the "W-W Subwatershed Channel/Riparian Inventory For Class III and IV Streams." Project areas included the Marr Flat, Pittsburg and Swamp Creek Allotments and the Bug Check and Wood Cat Timber Sales. About 103 miles of several thousand miles of stream channels on the Forest have been surveyed.

Lake Surveys: The Forest completed 200 acres of baseline survey at eight lakes in the Eagle Cap Wilderness using the methodology in "Region 6 Lake Inventory Handbook." Data was collected for water chemistry, drainage area physical attributes, and riparian areas. Of an estimated 5,100 acres of lake/reservoir habitat on the Forest, 350 acres of lake habitat has been surveyed since 1994.

Proper Functioning Condition Surveys: The Forest completed baseline surveys of selected sites using the BLM "Process for Assessing Proper Functioning Condition" of lentic and lotic riparian ecosystems.

Riparian Classification Surveys: The Forest completed baseline surveys of selected sites using "Classification of Mid-Montane Wetland Vegetation of the Malheur, Umatilla and Wallowa-Whitman National Forests."

Action to be Taken

Riparian Area Exclosures: Continue to monitor and maintain exclosures.
Cooperative Studies: Continue to participate in cooperative studies.
Other Long-Term Studies: Continue to monitor.
Riparian Improvement Projects: Continue to monitor.
Stream, Lake and Riparian Area Inventories: Continue inventories.

Monitoring Item 20
Peak Flow/Low Flow Cumulative Effects

Goal

Maintain favorable conditions of streamflow, including prevention or reduction of peakflow increases that can affect stream channel stability, and maintenance of streamflow produced during May through September.

Purpose of Monitoring (Implementation)

To determine if S&Gs and BMPs that may affect peak and low streamflow are being properly implemented within each project area.

Threshold of Variability

Evaluation is required when appropriate S&Gs or related BMPs (a) were not considered and incorporated in the project design phase, or (b) were not properly implemented during the contract/permit administration phase of the project.

Corrective action is required when improperly implemented S&Gs or related BMPs results in (a) serious peak streamflow increases in small headwater drainages and non-compliance with water quality and stream channel stability thresholds defined in Watershed S&Gs, or (b) lower summer streamflow than expected.

Results and Evaluation

Level 1 monitoring occurred during the planning phase of projects to determine if S&Gs or related BMPs listed in the Forest Plan were considered and incorporated in the design of the project. Of 47 projects reviewed during the planning phase, S&Gs and BMPs that may affect peak/low streamflow appear to have been properly considered and incorporated into project design.

However, monitoring sheets are not presently designed to report planning information and BMPs not referenced in the Forest Plan that may affect peakflow/lowflow. Examples are confirmation (1) that a hydrology or clearcut equivalency model was used to plan and limit effects of timber harvest activities on streamflow, or (2) that road drainage in a project area is being improved to decrease interception volume and routing time of surface and ground water by ditches and road surfaces, or (3) that timber harvest is being limited to a partial cut method, or to small regeneration cuts to improve snowpack retention and reduce potential change to snowmelt timing, or (4) that woody debris is being retained or added to uplands and/or ephemeral and intermittent drainages to increase routing time and infiltration of runoff and streamflow.

Level 2 monitoring occurred during the contract/permit administration phase to determine if S&Gs or related BMPs were implemented. Although all projects are monitored, only a portion of the monitoring is designed to provide information for aggregation to the Forest level. For the one active-project review reported, S&Gs and BMPs that may affect peak or low streamflow were implemented and within threshold.

Level 3 monitoring occurred during post-project field reviews by interdisciplinary teams to determine if S&Gs or related BMPs were implemented. Of the two project reviews reported, with few exceptions, S&Gs and BMPs were implemented for the monitored projects and were within threshold. The threshold of variability for at least one S&G, that may affect peak or low streamflow, was exceeded for 1 project, Irish Quartz TS, where evaluators reported some existing watershed/road problems were not treatable because they were not within the scope of the project.

Action to be Taken

A new worksheet may be developed and used for reporting peak and low streamflow-related implementation monitoring.

Irish Quartz TS: Opportunities to correct watershed/road problems affecting peak streamflow will depend on future agency funding.

Purpose of Monitoring (Effectiveness)

To determine if S&Gs and BMPs are effective in meeting project objectives for peak and low streamflows. See paragraph about S&Gs under Purpose of Monitoring (Implementation).

To determine if streamflow models being used on the Forest accurately predict peak and low streamflows in watersheds with different hydrologic regimes and management systems (i.e., use data to validate models).

Threshold of Variability

An assumption of effectiveness monitoring is that S&Gs and BMPs that affect peak or low streamflow quantity, duration, or timing, have been properly implemented.

Peak Streamflow: Immediate evaluation and appropriate corrective action are required under this monitoring item when a short or long-term study or a validated model shows (1) that vegetation management activities (wildfire, prescribed fire, timber harvest, etc.) are not being patterned and scheduled to minimize the potential for adverse cumulative change in peak streamflow, including quantity, duration, or timing of peak streamflow, or (2) in watersheds where vegetation management activities are influencing peakflows, stream channel (bed or bank) stability is not being maintained at 100% of "potential" (compare with Wildlife S&G 1). Thresholds for stream channel instability vary by Rosgen channel type and are not defined at this time relative to clearcut equivalency or other factors. The threshold range for clearcut equivalency is probably between 15% and 33%. It is assumed that S&Gs and BMPs are being properly implemented. Corrective action may include development and implementation of new BMPs.

Low Streamflow: Immediate evaluation and appropriate corrective action are required under this monitoring item when a short or long-term study or a validated model shows that vegetation management activities, out-of-stream water uses, or other activities have reduced streamflow during May through September. This may include quantity, duration, or timing.

Results and Evaluation

Permanent stream channel cross-sectional transects have been established on several Forest streams to monitor long-term trends in channel conditions, such as sediment aggradation and degradation. Other data on stream channel conditions, such as percent fines and embeddedness, are being collected as part of Region 6's stream inventory program, and as part of other special studies reported under monitoring item 18. Data on stream discharge and stage height are also being collected from many stream gaging stations and stage height stations across the Forest. This information can be used to validate and refine streamflow models. Streamflow data in gaged watersheds, channel cross-section data, and data on percent fines and embeddedness can also be used to monitor the effects of management activities.

To date, studies have not provided results that can be measured against the established threshold. Specific ongoing studies and data collection sites are discussed below.

Stream Channel Stability Monitoring

Baseline stream channel cross-sectional transects have been established on several streams across the Forest: 3-Imnaha River (Eagle Cap RD & HCNRA); Fly Creek, 2-West Chicken Creek, 3-Winter Canyon, Little Catherine Creek (La Grande RD); North Fork Burnt River (Unity RD); Devils Run Creek, Little Sheep Creek, Big Sheep Creek, Grouse Creek, Road Canyon, Shadow Canyon (Wallowa Valley RD). Partial results of some studies are reported below.

Twin Lakes Fire Effects: Twin Lakes Fire was monitored in the fall of 1994 and again in 1995, utilizing soil erosion plots and channel cross-sections to determine the effects of fire on water, soil, and vegetation within the Imnaha watershed. Three river cross-section transects were installed on the Imnaha River (between Indian Crossing and the Blue Hole) in the fall of 1994. Objectives of the transects are to monitor

the rates of riparian vegetation re-establishment and changes in channel morphology. Stream transects will be measured every fall for five years after the fire and then once every five years thereafter. Length of the study is approximately 15-20 years depending on the establishment of riparian vegetation.

Preliminary results from watershed monitoring within high intensity burn areas indicated that excessive erosion did not occur after one year (Stack, Chapin, Hustafa, 1995). Specifically, roughness elements and emergent vegetation helped reduce formation of rills and gullies, and subsequent soil transport to streams. Bank stability and riparian vegetation remained in good condition, with some downcutting and unstable streambanks contributing a relatively small amount of sediment to the Imnaha River. Revegetation of the area was extensive with dense stands of pine grass with mountain brome. No aerial seeding was performed. Where grass density is less, forbs, shrubs, and ponderosa pine seedlings are covering the terrain. Less than 20% of the area monitored has low vegetative cover. Where there is no vascular plant cover, a patchwork of liverwort colonies and mosses, and downed large woody material is protecting the surface soil from direct raindrop impact and splash erosion.

Little Sheep Creek/Joseph Hydropower Plant: Baseline/trend riparian area photo point, and stream channel cross-section, pebble count, and bank stability monitoring began on Little Sheep Creek in 1994 to determine if riparian vegetation and stream channel conditions will improve after implementation of S&Gs and BMPs in the revised hydropower plant operating plan. Photo points and cross-sections were re-measured in 1995. Monitoring will continue in 1996.

Field observations during 1996 indicate a very dynamic channel with large sediment loads pulsing through the watershed. Channel banks remain unstable. The hydroelectric company has hired a consulting firm to conduct monitoring of the channel. A copy of their annual monitoring report "1995 Little Sheep Creek Monitoring Report - Joseph Hydroelectric Project" is on file at the Wallowa Mountains Zone Watershed office. Information from the report will be used to update during the annual operating plan for the project.

Road Canyon and Shadow Canyon: Two cross-sections were established in Road Canyon and five in Shadow Canyon during 1994. These channels are intermittent in characteristic. The cross-sections were re-measured in 1995. No trend can be determined at this point, the transects will be re-measured in 1996.

Action to be Taken

Continue to monitor existing transects; analyze and report results when sufficient data is collected. Install additional transects at riparian area cumulative effects monitoring sites listed in monitoring item 19, or other sites as needed.

Stream Discharge Monitoring

Streamflow data is an essential component of this monitoring program. The data is required to define the hydrologic regime of a watershed and to monitor the effects of vegetation management and wildfires on quantity, timing and duration of streamflow. The most valuable information is collected at continuous recording stream gages. Staff gages are of limited value for these types of studies. Some data is being summarized in annual reports (see monitoring item 18). The more important study sites are listed below.

Forest Service gaging stations: 2-Meadow Creek, Grande Ronde River, Five Points Creek, North Fork Catherine Creek (La Grande RD); 2-North Fork Burnt River, South Fork Burnt River (Unity RD). Lake Fork Creek (Pine RD) was dropped due to lack of funding.

Forest Service staff gages: Squaw Creek, West Chicken Creek, East Fork Grande Ronde River, Clear Creek, Limber Jim Creek, 2-Grande Ronde River, Fly Creek, Spring Creek, Indian Creek, Big Creek, South Fork Catherine Creek (La Grande RD); East Pine Creek, Clear Creek (Pine RD).

Several other stream gaging stations located on the Forest are under special use permit to other federal agencies, OWRD, and private cooperators. These include Deer Creek near Phillips Lake, Powder River at Hudspeth Lane, Powder River below Mason Dam, Eagle Creek near Richland, Hells Canyon Dam, and

Snake River at Johnson Bar. Several other stream gages are located near the Forest boundary, such as Rock Creek near Haines, Wolf Creek near North Powder, Lostine River near Lostine, Bear Creek near Wallowa, Minam River near Minam, Imnaha River near Imnaha. Data from some of these gages also may be useful for peakflow or lowflow studies.

Action to be Taken

Continue to monitor. Continue cooperative agreements.

Monitoring Item 21
Soil Productivity

Goal

Maintain or enhance soil productivity, including the physical, biological, chemical, mineral and organic components of soil that affect soil productivity.

Purpose of Monitoring (Implementation)

To determine if soil productivity S&Gs are being implemented, especially the standard which limits detrimental soil conditions within each activity area to no more than 20% of activity area acreage.

Threshold of Variability

Evaluation is required when soil productivity S&Gs, or related S&Gs or management area direction, and associated soil management practices (a) were not considered and incorporated in the project design phase, or (b) were not properly implemented during the contract/permit administration phase of the project.

Corrective action is required (a) when detrimental soil conditions, including system roads and landings, exceed 20% of activity area acreage, or (b) when non-compliance with a soil productivity S&G is causing non-compliance with a watershed S&G or BMP that is related to the Clean Water Act or the ESA (Threatened and Endangered Species Act).

Results and Evaluation

Level 1 monitoring occurred during the planning phase of projects to determine if soils S&Gs were considered and incorporated into the design of the project. Of the 62 project reviews reported, soil S&Gs were evaluated for 38 projects and were reported to have been properly considered and incorporated into project design, except for soil productivity and detrimental soil condition concerns related to minerals projects. The threshold of variability for one or two soil S&Gs was reported to be exceeded for some aspect of 12 minerals projects, which may be mostly a reporting format problem as discussed in the 1994 monitoring report. Details of each project are on file.

Soil scientists also inventoried pre-project detrimental soil conditions in portions of five timber sale planning areas using a rapid assessment sampling protocol developed in 1995. Results suggest that three of the five planning areas include certain tractor-logged lands where pre-project detrimental soil conditions exceed 20% areal extent. Estimated areal extent of detrimental soil conditions along transects ranged from 2% to 85%; 8 of 23 transects exceeded the 20% areal extent standard.

Level 2 monitoring occurred during the contract/permit administration phase to determine if S&Gs were implemented. Although all projects are monitored, only a portion of the monitoring is designed to provide information for aggregation to the Forest level. Of the ten active-project soil S&G evaluations reported, soil

S&Gs were stated to be implemented and within threshold, except for some aspect of three projects. For Sufferin Smith TS, detrimental soil conditions in Unit 1 may exceed 20% and in Unit 2 may be 40-60%. For Sawtooth TS, detrimental soil conditions in Unit 102 may be 20-25%, and in Units 103 and 105A may be 25-30%. For Snell Hollow TS, detrimental soil conditions in Unit 2 may exceed 20%.

Level 3 monitoring occurred during post-project field reviews by interdisciplinary teams and specialists to determine if S&Gs were implemented. Of the eight post-project reviews reported, soil S&Gs were evaluated for seven projects and were stated to have been implemented and within threshold, except for some aspect of two projects. Detrimental soil conditions in Velvet Creek TS Unit 21 appeared to be high, and mitigation of detrimental soil conditions in Gravel Flat TS Unit 17 caused soil damage in shallow soil areas.

Action to be Taken

Level 1 Monitoring: Soil scientists will gather detrimental soil condition data at several mineral exploration or extraction project sites during 1996, and will report results and recommendations. Detrimental soil condition survey data are being used in the timber sale planning process.

Level 2 Monitoring: Soil rehabilitation treatments were recommended for portions of Sufferin Smith TS Units 1 & 2, Sawtooth TS units 102, 103 & 105A, and Snell Hollow TS Unit 2.

Level 3 Monitoring: Soil restoration treatments were recommended for Velvet Creek TS Unit 21.

Forest-wide, the project planning process needs to be better used as a tool for minimizing detrimental soil conditions (i.e., 20% detrimental soil conditions is not a goal). More careful layout and implementation of soil restoration treatments is recommended.

Monitoring Format: Revise the monitoring form and guidelines as recommended in the 1994 report.

Purpose of Monitoring (Effectiveness)

To determine if soil productivity S&Gs, and accepted soil management practices that are believed to achieve soil productivity S&Gs, are effective methods for maintaining or enhancing soil productivity. These projects may be short or long term, and may require pre- and post-project data collection. Included are projects designed to determine if specific soil management practices are preventing or ameliorating detrimental soil conditions as planned. If projects are also designed to determine compliance with soil productivity S&Gs, especially the requirement that detrimental soil conditions not exceed 20% of activity area acreage, results will also be reported in the implementation monitoring section.

Threshold of Variability

Evaluation and corrective action are required when a soil productivity S&G, or an accepted soil management practice used to achieve a S&G, or lack of a S&G for a documented soil management problem, do not appear to maintain or enhance soil productivity.

Results and Evaluation

Soil Compaction or Bulk Density Monitoring

Deerhorn Timber Sale Coop Study: This is a cooperative project involving Louisiana Pacific Corp., PNWF&R Experiment Station, and La Grande RD. The study site is located on Louisiana Pacific lands. The objective of the study is to determine impacts to soil by harvester, forwarder, and cable systems to remove logs from relatively flat ground. Initial results indicate less than 3% soil damage from the combined logging systems. Final results are expected in 1996.

Wapiti Timber Sale/Harvester Forwarder Study: The objective of this project is to determine the effect of a low ground pressure (approximately 6 to 8 psi) harvester forwarder operation on soil bulk density during

logging operations. Two methods of determining soil bulk density increases were used: (1) measurement of soil bulk density using core sampler, and (2) ocular observation of visual soil disturbance class and determining damage class using soil physical characteristics and resistance to shovel penetration. Ten sample sites were located approximately 50 feet apart on a walkway/trail.

Initial results indicate that average soil bulk density was increased by greater than 20% at 8 of the 10 sample sites. Average pre-operation bulk density values ranged from 0.63 g/cm3 to 1.05 g/cm3. Average post-operation bulk density values ranged from 0.86 to 1.19.

Estimates of soil compaction were also made by observing soil structure, consistence, root concentration, and resistance to shovel penetration. Ocular estimates of compaction and resistance to shovel penetration tended to correlate better with pre-harvest rather than post-harvest conditions.

No estimate of effect of slash or duff depth on soil compaction was made. Slight to moderate puddling was observed on a few portions of the monitored walkway/trail. No gouging occurred because logs were fully suspended during transportation by the forwarder.

This project did not determine the areal extent of detrimental soil conditions resulting from the use of the harvester forwarder. All core samples were taken on the walkway/trail to measure the direct effect of the machine operation on soil bulk density and other physical properties. A total of six passes were made on the trail with the forwarder loaded. Soil conditions were at or near field capacity during logging and yarding operations (26% gravimetric moisture content). Generally, harvest operations would not take place under such moist conditions. If skid trial spacing is 50-75 feet or greater, it can be assumed that S&Gs would be met during this kind of harvest operation.

Highway Timber Sale/Grapple Piling Study: The objective of this study was to determine the effects of a low pressure excavator (Kubota - approximately 4.5 psi) on soil bulk density and soil displacement during grapple piling of fuels. Walkways/trails used during the grapple piling operation were pre-determined and flagged. Twenty-five to thirty pre- and post-operation soil bulk density samples were taken with a core sampler within four timber sale units. Results have been summarized for only two of four units due to lack of monitoring funds.

For Unit 20, the average percent increase in soil bulk density as a result of the grapple piling operation was 21.9 per cent. For Unit 15, the average increase in soil bulk density was only 1.2%. The difference may be explained by several factors. Soils in Unit 20 had a higher moisture content than those in Unit 15. Unit 15 also showed evidence of previous disturbance. Pre-operation bulk densities were already 15-20% above those for undisturbed ash soil.

This project did not determine areal extent of detrimental soil conditions resulting from grapple piling operations. Results do indicate that under moist, undisturbed soil conditions, use of a low ground pressure excavator to pile slash does compact soil within walkways/trails.

Sled Timber Sale/Winter Logging Study: The objective was to determine the effectiveness of current winter logging soil protection guidelines. Approximately fifty pre-/post-project soil bulk density samples were taken with a core sampler. Lab analysis has been completed, but results have not been summarized due to lack of funding.

North Devil Timber Sale Subsoiling Study: Five units were evaluated within the North Devil soil rehabilitation contract area to determine effectiveness of subsoiling in reducing soil compaction. Approximately 15 to 20 soil samples per unit were taken with a core sampler. Effectiveness of subsoiling will be determined with the comparison of pre- and post-project bulk density samples. Post-operation bulk density samples were taken in the fall of 1994 and are planned to be taken in 1996, and 1998 (one, three, and five years following operation). Photo points were established at the time of project implementation to analyze effects of subsoiling on visuals and vegetative recovery.

Results of the first year (1994) post-project monitoring have been summarized. Soil bulk density values were substantially lower one year following subsoiling. Average percent change ranged from -11 to -31%

for site A, +2% to -27% for site B, -8 to -19% for site C, and -15 to -34% decrease for site D. Objective of the 3 and 5 year post-subsoiling sampling and analysis will be to determine if the soil bulk densities stabilize, increase or decrease over time.

TNT Gulch Livestock Exclosure/Soil Bulk Density Study: The objective of this study is to determine effects of stream rehabilitation and exclosure on recovery of compacted soils. Pre-treatment soil bulk density samples were taken from the project area during 1993. Lab analysis has been completed for baseline data, but data has not been summarized due to lack of funding. The first set of post-exclosure samples will be taken in 1999 (five years post-rehabilitation fence construction), and at five to ten year intervals thereafter.

Basin Timber Sale/Sample Method Study: The study site was Unit 52 of Basin Timber Sale. The objective was to compare qualitative and quantitative methods for determining soil compaction, with the intent to develop a defensible qualitative inventory protocol. If visual estimates of compaction and shovel penetration observations correlate well with soil bulk density measurements, they can replace the core sampling methodology, thus reducing the time and expense of monitoring. Data summary and analysis is planned for 1996.

Sample Methodology Study 2: The objective of this study was to compare soil bulk density measurements using two different sampling methods: (1) calibrated nuclear densitometer and, (2) core sampler. Nuclear densitometer samples were analyzed by OSU and core samples were analyzed by the District during the winter of 1995.

The nuclear densitometer generated bulk density values 15% to 36% higher than those measured in matched core samples. Rock fragment may be one cause of this difference. Rock fragment content is accounted for in the analysis of core samples, but not in nuclear densitometer samples. Preliminary interpretation of the data indicates that values obtained by these two different methods are not comparable.

Action to be Taken

Deerhorn Timber Sale Coop Study: Continue coop agreement. La Grande RD plans to replicate this project as part of the Limber Jim Fuels Reduction project in the Upper Grande Ronde River drainage in 1996.

Wapiti Timber Sale/Harvester Forwarder Study: Write a summary report in 1996. Continue to monitor effects of harvester on soil disturbance in spring and summer of 1996. Report findings and results.

Highway Timber Sale/Grapple Piling Study: Write a summary report in 1996.

Sled Timber Sale/Winter Logging Study: Write a summary report in 1996.

North Devil Timber Sale/Subsoiling Study: Continue to monitor in 1996 and 1998, then write a summary report.

TNT Gulch Livestock Exclosure/Soil Bulk Density Study: Continue to monitor; collect next data set in 1999, analyze data and prepare interim report.

Basin Timber Sale/Sample Method Study: Analyze/summarize data and write summary report in 1996.

Sample Methodology Study 2: Data summarized. Project completed.

Soil Displacement Monitoring

Highway Timber Sale/Winter Logging Study: Use of skid trails located on shallow, rocky soils within the Highway TS during the winter of 1993 resulted in detrimental soil displacement. Effectiveness of two techniques used to rehabilitate detrimental displacement of shallow soils (use of hand tools and use of D-7

dozer to replace top soil and remaining live vegetation) was monitored. This was done qualitatively, by observation. Photo points were established to document soil disturbance.

Results indicate that rehabilitation of detrimentally displaced shallow soils can be adequately accomplished by using hand tools and placing woody material on disturbed areas. Observations of rehabilitation by D-7 dozer indicate that it is also adequate. Photo points will be established during the summer of 1996 to monitor effectiveness of D-7 dozer restoration.

Action to be Taken

Complete photo point installation and prepare final report in 1996.

Soil Erosion Monitoring

Twin Lakes Fire/Fireline Rehab Study: Rehabilitation of tractor built firelines was monitored for effectiveness. Fireline rehabilitation consisted of replacement and leveling of berm which consisted of duff topsoil. Large wood was placed on the fireline to reduce erosion and to provide future nutrients. A dozer with grapple was used for the operation. Firelines were revisited in summer of 1995. Observations indicate that rehabilitation efforts were successful in preventing excessive erosion from firelines.

Twin Lakes Fire/High Intensity Burned Area Study: Objective of this project is to determine effects of high intensity wildfire on soil erosion rate, presence of and longevity of hydrophobic soils, and changes in and rate of hillslope vegetation recovery.

Observations indicate that excessive erosion did not occur after one year. Moderate sheet and rill erosion was indicated in some areas by pedestalling of rock fragments. Surface roughness and emergent vegetation helped to reduce formation of rills and gullies, and to reduce transport of subsequent sediment transport to streams. In general, soil hydrophobicity appeared to be low, with hydrophobic layers located approximately 1 inch below the soil surface. The exact quantity of sediment and rate of erosion will be calculated and reported in spring of 1996. This project is expected to continue for a minimum of two years.

Action to be taken

Twin Lakes Fire/Fireline Rehab Study: Project is complete. Fire lines will be revisited for informal observation and documentation.

Twin Lakes Fire/High Intensity Burned Area Study: Continue to monitor.

Soil Microbiology Monitoring

Basin Timber Sale/Soil Microbiology Study: The objective of this project is to determine effects of soil disturbance on soil nutrient cycling and productivity through analysis of trends in the soil microbiological populations and species composition. This project is being done in ash soils with moderate to high levels of compaction.

A total of 56 samples were taken for lab analysis. Seven samples were taken from four different treatments: severely compacted sites, moderately compacted sites, uncompacted sites within harvest unit; uncompacted sites outside of unit with canopy cover. Samples were taken from two different soil depths: 0-2 inches; 5-7 inches. Data from the uncompacted sites will be used as baseline data to help analyze differences in soil microbes in compacted soils versus uncompacted soils. Soil bulk density samples (core samples) were taken at each sample site for each soil depth sampled. Samples were analyzed in the spring of 1995.

Action to be Taken

Analyze data and write summary report in 1996.

Soil Stability

Big Sheep Creek Landslide Study: The objective of this monitoring was to map historic landslides in the Big Sheep Creek watershed, to determine whether they are active, and to determine effects of road construction or other land management activities on landslide activity. Landslide and road overlay maps, mapping and analysis were completed in 1995. Results and evaluation are reported in the Big Sheep Creek Watershed Analysis report on file at the Wallowa Valley RD.

Action to be Taken

Initial mapping project complete.

Soil Productivity

Soil Productivity/Large Woody Debris Study: Determine natural range of variability for downed wood on Blue Mountain forested ecosystems. Establish guidelines for individual plant associations or plant association groups. Range of tons/acre should be developed for each plant association group which will satisfy long-term soil productivity needs, and fit within accepted fire risk levels. Without guidelines to direct prescribed burning activities, adequate wood levels may or may not be left on site to act as nutrient sources.

Action to be Taken

Continue to gather data for study.

Monitoring Item 22
Air Quality

Goal

To meet the requirements of the Clean Air Act and the Forest Plan.

Purpose of Monitoring

To determine if emissions from prescribed fire are managed within the requirements of the Clean Air Act. The primary considerations are the National Ambient Air Quality Standards for particulate matter 10 microns or smaller (PM10) that are established to protect human health.

Threshold of Variability (PM10)

Established threshold standards for PM10 levels have been set by National and State agencies at 50 micrograms per cubic meter of air as an annual arithmetic mean and an average daily standard of less than 150 micrograms per cubic meter in a 24 hour time period.

Results and Evaluation

1995 was the first year of the implementation of the MOU (memorandum of understanding) between the Oregon Department of Forestry, Region 6, and the DEQ (Department of Environmental Quality). This interagency agreement provides the framework for implementation of an innovative and effective air quality

monitoring program. It allows for implementation of a smoke management plan for the Blue Mountain National Forests. At the heart of this program is the establishment of a "real time" monitoring network consisting of nephelometers (a device that samples the air mass to measure light scattering due to air borne particles, smoke, dust, etc.). Additional elements of the program is the registering of all burning units, acres and estimates of biomass to be burned. Once registered, all units are tracked through to completion with final estimates on emissions produced. Oregon Dept. of Forestry, as part of this program also issues smoke dispersal forecasts to aid in the planning and execution of burn projects so as to minimize possible adverse health effects to local communities.

The following tables display the spring burning period readings from the nephelometers located in Baker City, Enterprise, and La Grande. These readings demonstrate that no significant intrusions occurred at any of these sites during the spring burning season of 1995.

The highest readings recorded during the period resulted from a massive wildfire outbreak located in Northern British Columbia, Canada. This was a very large smoke episode which impacted substantial areas of the West. The episode began during the early morning hours of June 28, 1995 and continued through the afternoon of July 2. At this level the presence of smoke in the ambient air was detectable, but was still well below the established threshold limit.

The spike shown on June 13 at Baker was from a local urban source (barbecue). The monitoring system is not operated during the summer or fall per the terms of the MOU. A dialog to consider the expansion of the monitoring season to include summer and fall is underway. This may result in increased monitoring.

Action to be Taken

Continue to participate in the real time monitoring network. Expand the time period the equipment is in use as the potential for impacts from fall prescribed burning increases. Ensure that as the ecosystem burning program grows to to does the awareness of smoke impacts and the Forest's responsibility to manage the program so as to minimize the adverse effects.

Purpose of Monitoring

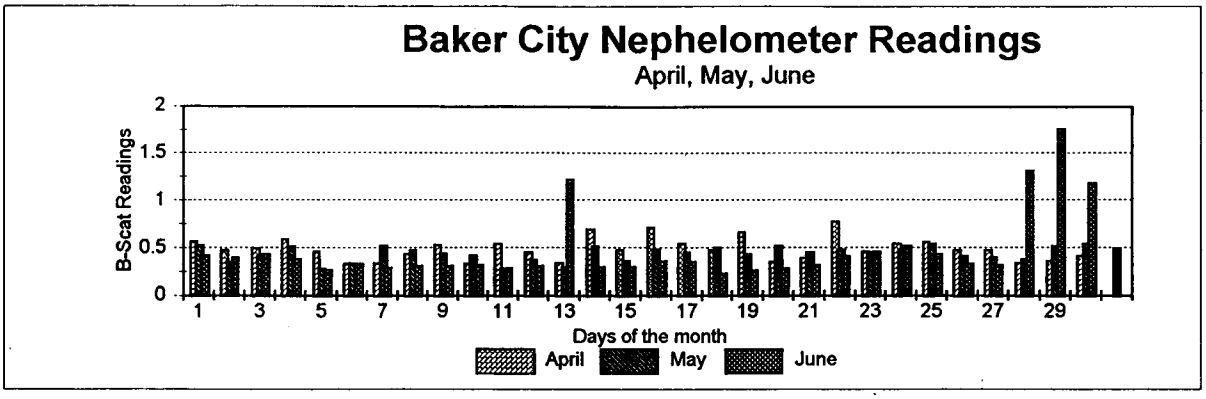
To ensure Clean Air Act requirements for the protection of Class I areas from the effects of air pollution are met. The Eagle Cap Wilderness and Hells Canyon Wilderness are Class I Areas.

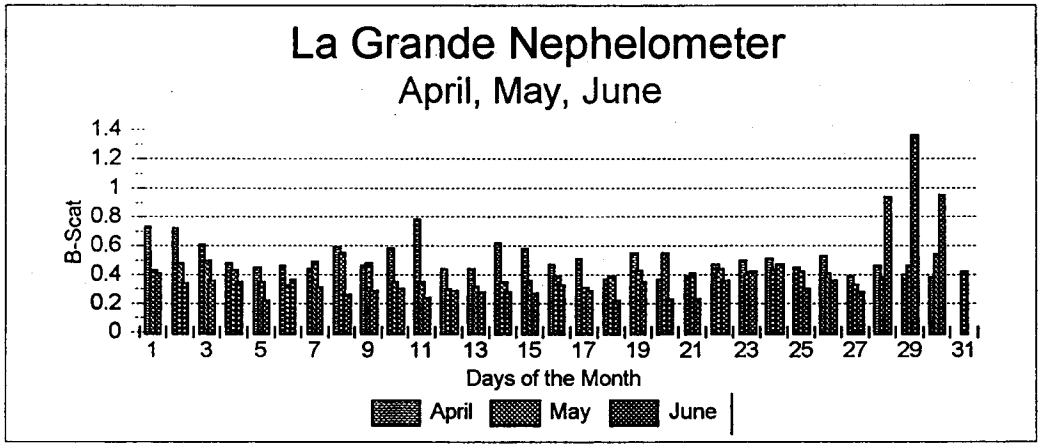
Results and Evaluation

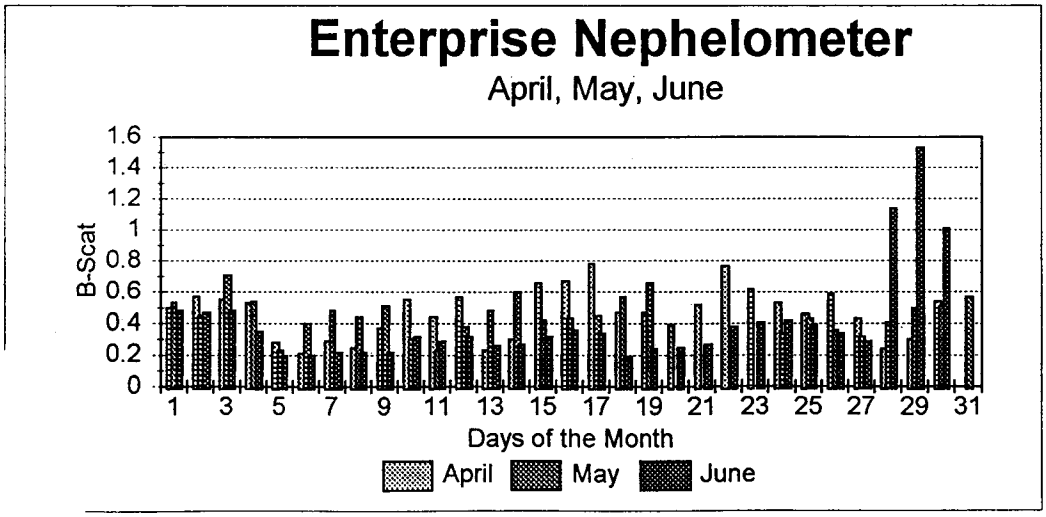
Visibility is the only AQRV that is currently being monitored for Clean Air Act and Forest Plan compliance. The State of Oregon EPA is the government agency that has established and maintains the camera network used to measure visibility effects. They have established a manual camera location on Mt. Howard (Hells Canyon Wilderness) and Pt. Prominence (Eagle Cap Wilderness). The Forest supplies the lookout staffing who are responsible for taking pictures three times a day with the camera pointed at Burger Butte (Eagle Cap Wilderness) and Hat Point (Hells Canyon Wilderness).

The individual also maintains a written log of the conditions at the time the pictures are taken (only at the Pt. Prominence location), approximately 9:00 a.m., 12 noon, and 3:00 p.m. The written observation record began on 6/30/95 and continued until the lookout was closed on 9/30/95. Only two days during this period were logged as having the target obscured by "other or unknown smoke." Haze was noted on 11 days during this period, no source was identified except for the first notation, and this was from the previously mentioned smoke drifting in from the Canadian fires.

The slide film that was collected has not been analyzed by EPA since 1993. Discussions are underway to encourage that this work be completed so as to continue with this monitoring effort. There is some question as to whether or not the company in Colorado that has done this work in the past is still involved with this type of analysis. If the slides are analyzed in time for the monitoring report, the results will be included at that time, or in subsequent years.


Baker City Nephelometer Readings
April, May, June
B-Scat Readings
2
1.5
1
0.5
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29
Days of the month
April
May
June


La Grande Nephelometer
April, May, June
B-Scat
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
Days of the Month
April
May
June


Enterprise Nephelometer
April, May, June
B-Scat
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
Days of the Month
April
May
June

The Payette National Forest has also been involved with a camera station (Horse Mountain) located on the Idaho side of the Snake River with a target of Hat Point. The results of this monitoring effort are also unclear; there is some difficulty in determining if the slides have been studied to determine the SVR (standard visual range). This potential information will be treated in a similar fashion as the Pt. Prominence data.

A draft AQRV monitoring plan has been received form the contractor hired to write an air quality monitoring plan for the Forest. The contractor has been asked to review the potential air related impacts to the Forest's established AQRVs, flora, fauna, water, visibility, and archaeological resources. Preliminary information contained in the draft report indicates that the need exists to continue to monitor the status of Class I visibility during the protection period between July 4 and Labor Day. Additional information contained in the draft advises that monitoring of the archaeological (pictographs) within Hells Canyon is to be considered due to their significance and sensitivity to acid rain.

The final report will contain the recommended strategies given a variety of budget scenarios and future potential impacts to these AQRVs.

Action to be Taken

Complete a final air quality monitoring plan. Institute the recommendations to the extent the budget permits, and risks to the referenced AQRVs warrant.

Monitoring Item 23
Fisheries Habitat

Goal

Maintain or improve anadromous and resident fish habitat

Purpose of Monitoring

Ensure that Forest Plan targets for anadromous fish habitat are met.

Determine if stream restoration and habitat improvement projects are effective in meeting aquatic habitat objectives as stated in the Forest Plan, Policy Implementation Guide and salmon Summit.

Threshold of Variability

If there is a decrease in habitat capability or fish populations in a watershed or subwatershed.

Results and Evaluation

A total of 363.5 acres of riparian habitat improvement was completed. A total of 300 fisheries habitat structures were placed in streams. This compares with the Forest Plan average annual projected output of 250 acres and 500 structures of fish habitat improvement work. The reduction in available funds for fisheries construction work resulted in postponement of planned anadromous habitat work and reduced accomplishment.

Fish Habitat Projects

Instream Habitat Projects

Large whole trees were placed in the Upper Grande Ronde River near Spool Cart Campground. A total of 130 trees were placed by helicopter in a cooperative project with the BPA and the Grande Ronde Model

Watershed. These structures are being monitored as part of a Regional pilot monitoring project. Burnt Corral, Nunamaker, and Fowler Creeks were treated with large wood additions (4.5 miles).

The WMZ (Wallowa Mountain Zone) placed five large whole trees in the Imnaha as the last installment of a five-year program. A total of 25 trees were placed in the river to increase large woody material needed to maintain habitat for spring/summer chinook and bull trout.

Stream Structure Maintenance

Twelve structures on Trout Creek, a tributary of the North Fork Burnt River, were repaired. In addition, large and small wood was added to improve fish habitat quality at each structure.

Riparian Area Treatments

Riparian Restoration

WMZ: Riparian tree planting was accomplished on 174 acres of streamside riparian area in nine exclosures using 7,400 conifers. Deciduous plantings were completed on 177.5 acres of streamside and upland riparian areas using 2,650 native deciduous species. Seven and a half acres of riparian conifer planting was protected by installing shade cards.

Recreation and fisheries personnel planted 500 ponderosa pine seedlings; 250 seedling Engleman spruce, 375 large stock conifers, and 100 fast-growing shrubs in two dispersed campsites adjacent to the Imnaha River (10 acres).

Riparian Plant Maintenance

Previously planted riparian areas require care and maintenance. WMZ personnel performed care and up-keep work on 2,846 riparian plants.

Riparian Fences

Fences were constructed to protect seven acres of riparian streamside areas at Marr Creek and Roads Gulch.

Approximately 100 yards of "buck and rail" fence were constructed along Lostine River to protect eroding banks from horses used by recreationists. In addition two sets of stairs were constructed to guide access to the river in high use areas to allow riparian plant recovery. Approximately two acres were protected by the project.

La Grande RD constructed 15 miles of fence to protect portions of Warms Springs, Burnt Corral, Catherine, North Fork Clark, West Chicken, and Fly Creeks.

Fence Maintenance

Maintenance was completed on 46.8 miles of fence that protect 1,135 acres of riparian habitat on the WMZ. Fence monitoring is conducted on a monthly basis. The Zone performed maintenance on 65 of 180 riparian exclosures that range in size for 0.25 to 10 acres. All exclosures and fences are annually monitored to ensure that they are functional.

The La Grande District monitored and maintained riparian area fences that protect 227 acres of riparian habitat along Meadow, Limber Jim, McCoy, and Warm Spring Creeks.

Roads

Roads no longer required for forest management and recreation activities are being closed to reduce sediment delivery to streams. (See monitoring item 11 for additional information.)

Four miles of recreational roads in the Imnaha River corridor riparian zone were closed to reduce sediment production for protection of Federally-listed salmon and Regional Forester-sensitive bull trout.

Fish Habitat and Species Distribution Inventory

Stream Inventory

The Forest surveyed 150 miles of stream habitat using the Region 6 Hankin and Reeves methodology.

Species Distribution Inventory

The South Zone (Baker RD, Pine RD, and Unity RD) electrofished 35.2 miles of stream habitat to determine species composition, distribution, and relative abundance. The primary purpose of the work was to assess bull trout distribution and abundance. The bull trout distribution in Pine Creek, North Powder River, and Upper Powder River was recorded for use in developing high priority bull trout watershed plans.

Action to be Taken

Continue to monitor.

Monitoring Item 24
Anadromous Fisheries Consultation (Chinook Salmon, Snake River Drainage)

Goal

Projects meet "not likely to adversely affect" criteria through implementation of projects.

Purpose of Monitoring

To ensure that projects are being implemented under the terms and conditions of the Section 7 consultation BO (biological opinion) agreed to with NMFS (National Marine Fisheries Service) that result in a project being not likely to adversely affect listed species.

To determine if the prescribed modifications are effective in actually meeting the not-likely-to-adversely-affect criteria.

Results and Evaluations

Timber Sales

Monitoring of five timber sales in the WMZ and eight on the La Grande RD found that the projects were in compliance with the standards, guides and mitigating measures prescribed in the EAs and BEs. No adverse affects to habitat or PET species occurred.

Snake River Fall Chinook Protection

Fall Chinook redds were monitored by air and then ground-truthed to verify results. The NMFS biological opinion required that the FS ensure redd sites were protected from damage by power and float boaters. Results of the field monitoring showed no adverse affects occurred. The study found that redds were located in sites that were generally not in conflict with human uses.

Recreation

Increased efforts to monitor recreation users impacts on Federally-listed spring/summer chinook salmon are being made by the Forest. Biologists, campground hosts, and recreation specialists have been actively engaged in providing recreationists information about how they can help protect endangered species. Signs and seasonal closures of camp areas are also used. Although monitoring is inconclusive at this time, it appears that the public has been receptive to these efforts and they are complying with conservation efforts.

Range

On the WMZ, 54 allotments containing 154 pastures were active during 1995. The terms and conditions of the biological opinion agreed upon between the Forest and the NMFS required extensive monitoring to ensure protection of listed salmon species.

Utilization standards were checked on 87% of all active pastures and on all high and moderate priority pastures except one. Six allotments were monitored by both allotment administrators and zone fisheries biologists. Photo points on all high and moderate priority pastures were established for long-term riparian trend information. Field evaluations, site specific observations, temperature monitoring, and physical habitat surveys were conducted by Zone personnel on these allotments during the summer.

Utilization standards were not exceeded on any range allotments monitored. Correlation of all available observations and range measurements found no adverse effects to spring/summer or fall chinook or adverse modification or destruction of designated critical habitat occurred.

The La Grande RD monitored 22 allotments in the Grande Ronde River sub-basin. Extensive monitoring of the allotments and all pastures resulted in only two pasture exceeding standards. The Warms Springs Allotment exceeded by 7% and the Campbell Flat pasture in the Starkey Allotment exceeded by 1% (the variability of measuring utilization the estimated margin of error can be up to 10%). Based on ODFW (Oregon Department of Fish and Game) records the number of spring/summer chinook salmon on the Forest continues to decline.

Redd Counts

Big Creek and Lick Creek were monitored to determine whether spring/summer chinook spawned in 1995 and whether livestock grazing would impact the redd sites. No redds were found and no impacts occurred. Seventeen redds were counted on the Imnaha River. Full time livestock herding on the Mud Duck Allotment resulted in no redds being affected.

Bank Stability

Bank stability monitoring occurred on: Marr Flat Allotment - Imnaha and Miller Butte pastures; Big Sheep Allotment- Upper Sheep and Middle Sheep pastures; and Buck Creek Allotment- Orchard pasture.

Within the Imnaha pasture, streambank stability was estimated between 90% and 95% post-grazing. Streambank stability was not monitored prior to grazing, but it is estimated that grazing the pasture in 1995 did not increase bank instability. In Miller Butte pasture, streambank stability was 98% prior to grazing and 96% post-grazing.

Within the Upper and Middle Sheep pastures, streambank stability was 89% to 96% stable post-grazing. Overall streamside vegetation and bank stability is good to excellent. Major areas of bank instability occur at road crossings and trails. Livestock were not significantly affecting bank stability within these pastures.

Within Orchard pasture, streambank stability was 90% stable prior to grazing and showed no increased instability post-grazing. The only observed change was a small amount of increased soil disturbance at trail crossings post-grazing.

Proper Functioning Condition Analysis

Proper functioning condition analysis was initiated on the Forest in the summer of 1995. The BLM methodology (TR 1737-9 1993) was taught to Forest hydrologists, biologists, vegetation managers, and other land management specialists in order to improve riparian monitoring and management. Application of the methodology was used on 49 miles of stream in nine allotments on the Forest. The analysis reflects a general trend corroborated by other stream and riparian inventory data that streams and riparian areas are improving. Many miles have been disturbed in the past and currently meet the definition of functioning-at-risk with an upward trend. An upward trend indicates that management practices are resulting in riparian and stream recovery. Most streams will reach proper functioning condition in the long term if this trend continues.

Results of Proper Functioning Condition Analysis on Nine Allotments

	PFC Determination			
Zone/ Dist	Non-Functional	Functioning-at-Risk	Proper Functioning Condition	Total Miles
WMZ	0	15.6(No trend determ.)	25.75	41.35
SZ	0	8.0(Upward trend)	0	8.00
Total	0	23.6	25.75	49.35

Action to be Taken

Continue to monitor.

Monitoring Item 25
Columbia River Basin Anadromous Fish Habitat Management Policy Implementation, PACFISH Requirements and INFISH Requirements

Goal

Commitments identified in the Columbia River Basin Anadromous Fish Habitat Management Policy, PACFISH strategy, and INFISH Strategy are met.

Purpose of Monitoring

To ensure the actions identified in the PIG (policy implementation guide) for the Columbia River Basin Anadromous Fish Habitat Management Policy, PACFISH standards and guides, and INFISH standards and guidelines are being implemented as planned.

Results and Evaluation

Desired Future Conditions

The Columbia River Basin Anadromous Fish Policy Implementation Guide objectives were established in 1993. Approximately 90% of the DFCs (desired future conditions) for streams in anadromous fish habitat have been established. All Section 7 watersheds in the Snake River basin that require endangered species consultation have DFCs recommended in the BAs (biological assessments) submitted to NMFS. The

Upper Grande Ronde River, Catherine Creek, Upper Grande Ronde River, Middle Grande Ronde River, Wallowa River, Lostine River, Minam River, Big Sheep Creek, Imnaha River, Chesnimnus Creek, Snake River all have DFCs established in the BAs for the Section 7 consultation completed in 1994. The North Fork of John Day River will be completed in 1996 in conjunction with a watershed analysis project.

Stream Inventory

Stream inventory required by the PIG is approximately 95% complete. Stream inventory using a Level II Region 6 survey protocol was completed on 150 miles of anadromous and inland fish streams in 1994. Approximately 2,000 miles of survey have been completed since 1989. This data resides in a Regional database which is accessible to biologists across the Region.

PACFISH Requirements

Four of the 41 mining BEs written on the South Zone were modified to bring them up to PACFISH standards. The WMZ screened 104 ongoing and eight new projects to meet standards. The screening took place as part of the NEPA and ESA consultation process.

INFISH Requirements

There were 37 mining BEs, seven timber sales, five range allotment plans, one recreational EA, and one watershed analysis developed or modified to meet INFISH standards on the South Zone.

The WMZ modified six projects to meet INFISH standards outside the area covered by PACFISH. All other projects (112) were modified to meet PACFISH due to their location in anadromous fish watersheds.

Action to be Taken

Continue to monitor.

Monitoring Item 26
Salmon Summit Action Plan Commitments

Goal

Implement commitments identified in the Salmon Summit Action Plan in a timely manner.

Purpose of Monitoring

To ensure commitments identified in the Salmon Summit Action Plan are being implemented in a timely manner.

Results and Evaluation

Riparian Acquisition Opportunities

The Forest has completed a Forest-level inventory of parcels for riparian land acquisition. One 23-acre easement in the HCNRA was acquired in 1995. The acquisition program is actively seeking and acquiring parcels in areas identified by the inventory that would benefit anadromous fish. The need to combine desirable parcels, willing sellers and funding results in a variable annual acquisition of lands.

Livestock Management

The Forest has a total of 79 active allotments that include riparian areas directly adjacent to anadromous fisheries habitat. All of the Snake River allotments are administered to ensure that they are not likely to adversely affect endangered salmon as required by ESA. (One allotment is North Fork John Day River and 78 are Snake River.)

Monitoring of range allotments is conducted to ensure the Forest Plan standards and guides are being met as well as ESA requirements. (See results of monitoring item 24.)

Mining Management

The Forest has identified active mining operations that potentially may affect anadromous fisheries habitat. Two operations were active in the Upper Grande Ronde River Section 7 watershed. The operations meet Forest Plan standards and guidelines and are closely monitored. Reclamation is not required because all work is within the channel prior to salmon spawning.

The Camp Carson mining site that threatened the Upper Grande Ronde River spring/summer chinook habitat and population was restored in 1995. The site was extensively evaluated, and NMFS was consulted, prior to the removal of extensive overburden that threatened to slide into the area used by salmon. Monitoring of the site will continue.

Diversion Screening and Man-Made Barriers

The Forest has completed an inventory of existing diversions requiring screens. A total of 24 diversions were identified in 1994 and five needed screens to meet anadromous fish protection requirements. Temperance Creek, Dug Bar, and, potentially, Little Bear Creek are the only streams remaining that may require fish screens. All will be screened or shut down to comply with salmon protection.

Accomplishments Benefiting Anadromous Fish not Covered in Previous Categories (Range Improvement, Number of Parcels Acquired, Miles of Road Obliterated, Miles of Stream Treated, Acres of Riparian Restored, etc.)

The following table quantifies the information previously provided for anadromous fish habitat.

ACTIVITY		REPORTING UNIT	QUANTITY
Anadromous stream improved (in-channel)(channel reconstruction, habitat imp.)		miles	8.5
Direct riparian rehabilitation (out-of-channel) (riparian planting, riparian exclosures, campsites closed, relocated, reconstructed, etc.)		acres	363.5
Rehabilitation treatments described in 1 and 2 above: **Riparian fencing, planting of vegetation and placement of large wood.**			
Roads:	Closed Obliterated Reconstructed	miles miles miles	4 * *
Land Acquisition:	Parcels acquired	number	1

* (See Monitoring Item 11 Transportation System)

Action to be Taken

Continue to monitor.

Monitoring Item 27
Old-Growth

Goal

Maintain the amount, size, and distribution of old-growth forest stands specified in the Forest Plan.

Purpose of Monitoring

To compare acres retained in old growth, by management area, with Forest Plan target acres.

Determine whether the number, size, and spacing of areas designated as old growth and pileated woodpecker feeding areas are being retained according to Forest Plan definitions and standards, and if they are being used by old-growth dependent species.

Threshold of Variability

If there is a loss of any designated old-growth stand. If more than 10% of the directed pileated woodpecker feeding areas are not to standard of designation, juxtaposition, and/or trees per acre.

Results and Evaluation

Approximately 6,312 acres in MA15 were surveyed during 1995. Of those surveyed acres, only 2,450 acres meet the old-growth standards in the Forest Plan. The Forest-wide one-acre survey technique (originated by Pine RD) was followed.

Since 1990, a total of about 26,855 acres of designated old-growth areas have been surveyed. Only about 30% of these acres have met the Forest Plan old-growth definition. Stands that did not meet standards were mainly deficient in large diameter trees and many have had some partial timber harvesting in the past. In most cases, replacement stands are unavailable. Firewood cutting is reducing the value of some old-growth stands, and wildfire has destroyed some designated old-growth stands.

Since only about 30% of the allocated old-growth meets the Forest Plan definition and replacement stands are not available, management requirements for old-growth (set by Region 6) are not being met. Results indicate the threshold of variability has been greatly exceeded.

One designated pileated woodpecker feeding area was monitored in 1995. Snags were below levels directed by Forest Plan standards. Foraging use by pileated woodpeckers was observed. These feeding areas are in need of protection from firewood cutting.

The Forest completed the process for a Forest-wide old-growth inventory based on forest stand data available in the Forest's geographic information system. Conclusions of this process is that inadequacies of the data preclude an actual biological analysis of the old growth situation. The results ended in determining how to improve and refine existing data and how to gather more data to improve the reliability of the mapping. A file of the inventory and inventory process is available at National Forest Headquarters.

Refer to the discussion under primary cavity excavators and pileated woodpecker monitoring items for a discussion of the efforts being conducted to measure use of old-growth areas by wildlife species.

Action to be Taken

Continue to implement Regional Forester's Forest Plan Amendment 2 to maintain all existing old-growth forest stands (Forest Plan definition) in all allocations until an inventory and evaluation can be completed. This will maintain options for meeting the management requirements for managing old-growth.

Continue field surveys for designated old-growth areas.

Concerns associated with old-growth management have been submitted to the Regional Forester as a potential issue to be considered in a Forest Plan adjustment. Evaluation of inventory results will be conducted in support of the Forest Plan adjustment process.

Monitoring Item 28
Dead and Defective Tree Habitat and Primary Cavity Excavators

Goal

Meet or exceed the minimum numbers, sizes, and distribution of dead and defective trees and logs in order to meet direction in the Interim Approach for Sale Preparation, Eastside Forests (RF Amendment 2).

Meet or exceed the minimum numbers, sizes, and distribution of dead and defective trees and logs in order to meet direction in the Forest Plan and habitat capability objectives for primary cavity excavators.

Purpose of Monitoring

To determine if all sale activities will maintain snags and green replacement trees of greater or equal to 21 inches dbh at 100% potential population levels of primary cavity excavators.

To determine if down logs greater or equal to 12 inches dbh are being left at an average of 20 pieces per acre in mixed conifer stands. In ponderosa pine stands, leave all large woody material.

To determine if the 20% snag habitat level on a stand-by-stand basis, and the 40% snag habitat level by subwatershed, are being achieved for snag classes less than 20" dbh.

To determine if existing snag habitat is managed at the 40% level, where available.

To determine baseline population numbers and trends.

Threshold of Variability

If more than 10% of the surveyed areas have less than 90% of the minimum prescribed dead and defective trees, snags, and logs. If the expected primary cavity excavators are absent from more than 10% of the surveyed sites, or are at 80% or less of predicted numbers.

Results and Evaluation

All sales were screened to meet direction in RF Amendment 2. This direction requires that snags greater than or equal to 21 inches dbh be retained at 100% potential population levels of primary cavity excavators.

The Forest Plan further directs that within individual cutting units, snags are to be maintained at the 20% level or higher. Subwatersheds are to be monitored to determine if snags are being maintained at the 40% level. This direction would apply to snags less than 21 inches dbh.

Monitoring of snag levels within subwatersheds is based primarily on estimates made during project level planning, not actual measurements. Estimates on 11 timber sales indicate that the 40% snag level within subwatersheds was met on seven sale areas and not met on 4 sale areas.

In addition several areas were surveyed for snag densities, totaling 17,960 acres. Surveys on one proposed timber sale area on the Baker RD (3,500 acres surveyed) showed that most units examined were below the Forest Plan directed retention level and that snags over 20 inch dbh were uncommon. Snag surveys were conducted along primary and secondary roads on the La Grande RD (12,460 acres). Snags greater than 20 inches dbh were at or above the 100% level on average. Total snags were at the 30% level on average, below the Forest Plan directed 40% level. Only 4% of the snags were western larch and ponderosa pine, key cavity nesting tree species. On the Pine RD, 2000 acres were surveyed in conjunction with the firewood EA. Average snag densities for the surveyed area was slightly less than the 20% level.

Based on visual surveys, nearly all districts reported some primary cavity excavator use of snag habitat. Snag use by primary excavators was monitored on the Wallowa Valley RD at approximately 300 points. Species presence (seen or heard) was as follows: Red-breasted nuthatch, 236 points; northern flicker, 175 points; hairy woodpecker, 76 points; pileated woodpecker, 67 points; white-breasted nuthatch, 58 points; red-naped sapsucker, 26 points; Williamson's sapsucker, 15 points; black-capped chickadee, 12 points; pygmy nuthatch, 8 points; downey woodpecker, 1 point; white-headed woodpecker, 1 point; black-backed woodpecker, 1 point; and three-toed woodpecker, 1 point.

No estimates for down logs or green tree snag replacements were given.

Based on estimates and surveys for snag habitat the threshold of variability is exceeded.

Action to be Taken

Continue to monitor.

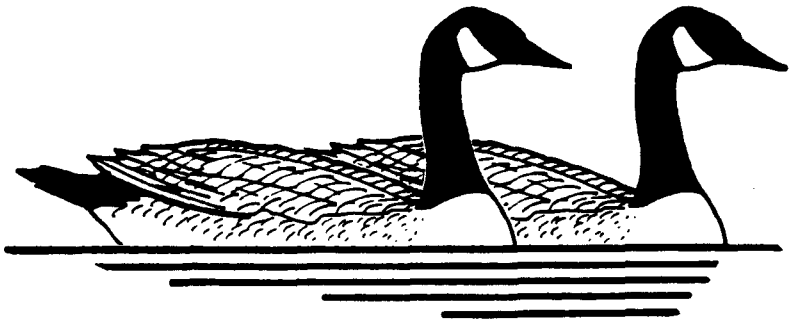
Funding needs to be provided for biologists to sample and quantify snag levels over large analysis areas, and track these through the post-sale process. Funding also needs to be provided to sample for primary cavity excavators to determine baseline populations and trends.

Further evaluate why post harvest snag levels were not met in measured units. Make adjustments in management as indicated by this evaluation.

Use the green tree snag replacement guidelines and create snags where deficient. Review snag creation programs to determine if this is cost effective and biologically sound.

Implement mitigation measures in Forest Fuelwood EA.

Consider the available snag monitoring information and new research information in the Forest Plan adjustment process.



Monitoring Item 29
Pileated Woodpecker

Goal

Maintain viable populations of pileated woodpeckers.

Purpose of Monitoring

To determine whether or not pileated woodpeckers are using designated habitat and feeding areas as planned.

To determine population trends.

Threshold of Variability

If there is greater than 10% variance from expectations in pileated woodpecker occupancy, use, or production on a five-year average. If populations are on a downward trend.

Results and Evaluation

Pileated woodpecker information is available on eighteen designated old growth areas based on surveys or chance observations in 1995. Twelve of those areas indicated sightings or recent evidence of pileated woodpecker feeding. The level of monitoring/observations was inadequate to determine nesting use.

These results indicate the threshold of variability is exceeded. In 1992, 1993, and 1994 the threshold was also exceeded. However, since the threshold is based on a five year average, additional information is needed.

Due to funding no quantitative monitoring of pileated woodpecker population and trend was conducted on the Forest.

Also see monitoring results for old-growth and dead and defective tree habitat, monitoring items 27 and 28.

Action to be Taken

If pileated woodpeckers are going to continue to be used as management indicators, then both habitat and population monitoring needs to be completed. Without this information the Forest cannot confirm assumptions we made about this species within the Forest Plan.

In support of the Forest Plan adjustment process further evaluate the adequacy of designated old-growth and direction in RF Amendment 2 in meeting pileated woodpecker habitat requirements. The evaluation should consider existing monitoring data on snag habitat and old-growth habitat and new information on the size of habitat needed per breeding pair.

Continue monitoring efforts and expand to include population data.

Monitoring Item 30
Goshawk Populations

Goal

Maintain viable or higher populations of goshawks.

Purpose of Monitoring

To determine whether goshawks are using allocated old-growth habitat or nesting habitat in other allocations where considerations allow.

To determine baseline populations and trends.

Threshold of Variability

If there is greater than 10% variance from expectations in goshawk occupancy, use, or production on a five year average.

If there is a 20% or greater shift in prey used over a five year average.

If there is greater than 10% deviation in predictability of goshawk nest site occurrence on a three year average.

Results and Evaluation

All districts completed at least some goshawk monitoring in 1995. Surveys followed the "Survey Protocol for Northern Goshawks on National Forest Lands in the Pacific Northwest Region" guidelines.

A total of 46 historical nests were surveyed for goshawk occupancy. Fifteen were occupied (goshawks were present in the territory). Where observed, seven nests produced only ten young, for an average of 1.4 young per nest. This is below the Forest Plan identified population sustaining level of greater than 2.1 young per nesting attempt. Five new nests were found.

The following tables display the information gathered since 1992.

Nest Activity

Year	Historical Nest Sites Surveyed	Surveyed Historical Nest Sites Active*	New Nests Found (Also Active)
1992	**	NA	46
1993	22	5	0
1994	52	25	5
1995	46	15	5

* Adding "Surveyed Historical Nest Sites Active" and "New Nests Found" gives the total active nest sites for the year. An active nest site is defined as goshawks observed in the nesting territory.

** Some of the new nests may include known historical nest sites for 1992.

In 1992 the new survey protocol was initiated. Twenty four of the nests located in 1992 were located in management allocations that would not provide protection of the nest site without Regional

Forester's Amendment 2 or if the nest were not identified in the timber sale planning process. Refer to the 1992 Monitoring and Evaluation Report for additional discussion.

Reproduction Information

Year	# of Nests Observed	# of Young	Young/Nest	FP Threshold
1994	4	5	1.2	2.1
1995	7	10	1.4	2.1

No monitoring of goshawk prey species was conducted. Funding was not available to determine baseline populations and trends.

There is an inadequate level of monitoring to address the threshold of variability. There appears to be reason for concern based on available monitoring data.

Inventory on at least some timber sale areas is inadequate to ensure location of active nest territories. Without identification of active nest territories the protection afforded by Regional Forester's Forest Plan Amendment 2 is not realized.

Action to be Taken

Continue to survey for goshawk nest site occupancy and productivity Forest-wide.

Goshawk surveys should be mandatory for each new timber sale analysis area since this action has the potential to modify existing habitat.

Survey for goshawk use in designated old-growth areas.

Follow guidelines for goshawk habitat management outlined in the Regional Forester's Forest Plan Amendment 2.

If the goshawk is going to continue to be used as a management indicator species, then both habitat and population monitoring needs to be completed. Without this information we cannot confirm assumptions made about this species within the Forest Plan.

In support of the Forest Plan adjustment, further evaluate available data, new information, habitat needs, and current direction for this species.

Monitoring Item 31
Pine Marten Populations

Goal

Maintain viable or higher populations of pine marten.

Purpose of Monitoring

To determine if the old-growth habitats (by management areas), subalpine forest, and uneconomic lodgepole pine areas are available and being used by pine marten as planned.

The final protocol for effectiveness monitoring of elk habitat was approved in the spring of 1992. Dr. Edward Garton, University of Idaho, was contracted to develop the sample design for this monitoring.

Testing the sample design, training of biologists and formal monitoring of effects of habitat change on elk populations were scheduled for 1993. Lack of funding has delayed the process.

Action to be Taken

Lack of funding continues to delay efforts to monitor the effects of habitat change on elk populations.

Monitoring Item 33
Bald Eagles

Goal

Protect and manage habitat for the perpetuation and recovery of bald eagles.

Purpose of Monitoring

To determine if the nesting, communal roosting, and associated foraging habitats are being identified and protected.

To determine if individual site management plans are being developed.

To determine if the young per occupied territory goals are being met.

Threshold of Variability

If a single nest or roost site is compromised due to Forest Service activities. If there is two years or more from time of discovery to completion of an approved site management plan. If there is 0.09 young per occupied territory, for all occupied territories under Forest management, in any given 5-year period.

Results and Evaluation

Two bald eagle nests were closely monitoring on the Forest in 1995. These two nests produced one young. Both sites have approved nest site management plans but an alternate nest site used by the eagles on Unity District are outside the covered eagle management area and, therefore, not covered by the plan. The reason for for nest abandonment of the Unity nest site when young were present is unknown. There is a concern about the level of monitoring during critical nesting periods.

Monitoring of communal winter roost sites were completed on the La Grande District from mid-December through March. Some level of monitoring was also completed on other districts with known roost sites. Information is compiled by Frank Issacs and is available in his annual report. Two roost sites are covered by site plans.

There still remains potential nest and roost sites that have not been surveyed due to lack of funding.

Long term nest productivity is within the guidelines established in the Forest Plan.

The nest site plan for the Unity site should be updated by the spring of 1996 to be within the established threshold.

Site plans for four known roost sites have not been developed within the timelines set in the threshold of variability.

Action to be Taken

Continue to monitor both nest and roost sites.

Schedule and prioritize development and update of nest and roost site plans that are needed to be within the established threshold.

Develop a bald eagle management plan which will identify active and potential nest and roost sites and provide direction for management of these areas.

Monitoring Item 34
Peregrine Falcons

Goal

Protect and manage for the perpetuation and recovery of the peregrine falcon.

Purpose of Monitoring

To determine if the nesting and associated foraging habitats are being identified and protected.

To determine if individual site management plans are being developed.

To decide whether potential nest habitats are identified and being managed to maintain suitability.

Threshold of Variability

If TE&S (threatened, endangered, and sensitive) species management is off plus or minus 20% from the Forest Plan "Multi-Year Action Plan." If there is any lag time in developing individual site management plans for reintroductions sites or active nest. If there is less than 1.35 young per occupied territory, for all occupied territories under Forest management, in any given 5-year period.

Results and Evaluation

Nesting

Two successful nests were monitored on the La Grande District in 1995. Six birds were fledged from the two sites. Nest site plans have not been completed for either site.

Based on sightings and breeding behavior observations over the past two years another nest site is located in the Hells Canyon Wilderness. Productivity has not been determined. A draft nest site management plan was developed for the site but more site specific information is needed to complete the plan. The site will be monitored next spring.

Hacking

Both hacking operations were continued in 1995 and were 40% successful. A total of 4 peregrines were fledged. This was the last year for hacking at these sites.

The threshold of variability for development of of nest site plans is exceeded for one nest site.

Action to be Taken

Continue to monitor the three nest sites increasing the level of monitoring for the Hells Canyon nest site. Search for additional nests.

Develop a peregrine falcon nest site plan for each nest site.

Develop a peregrine falcon management plan which will identify all active and potential nest sites, and provide direction for management of these areas.

Purpose of Monitoring

To determine if the young per occupied territory goals are being met.

Results and Evaluation

The two La Grande nest sites produced six young. Production at the Hells Canyon site could not be determined.

Action to be Taken

Continue to monitor for natural nesting sites and productivity in known nests.

Monitoring Item 35
Sensitive Species

Goal

The goal of the sensitive species program is to protect and manage habitat for the perpetuation and recovery of plants and animals which are listed by the U.S. Fish and Wildlife Service or National Marine Fisheries Service as threatened or endangered, Federal candidates for this listing, and plants and animals designated as sensitive by the Regional Forester. The Forest Service is mandated to assure that management activities do not jeopardize the continued existence of any of these species or result in adverse modification of their essential habitat.

Purpose of Monitoring

To determine whether species management guides for birds and mammals are being developed in a timely manner based on an established schedule.

To determine if project objectives and practices are adequate to protect bird and mammal species viability and to prevent uplisting of species.

Threshold of Variability

No thresholds have been established for this monitoring item.

Results and Evaluation

Currently, protection of sensitive birds and mammals and their habitats has been through prescriptions developed during project-level planning. The effectiveness of these prescriptions and associated risks are

documented in BEs. Monitoring checklists were reviewed for 54 projects. For all but one of those projects BEs were prepared.

To address species viability, it is necessary to evaluate population levels and address habitat needs at a scale larger than the project level. This can only be accomplished through development of a species management guide for each sensitive species.

Before species management guides can be written, survey plans and complete inventories need to be accomplished. In 1995 some form of surveys for wolverine, lynx, Townsend's big-eared bats, upland sandpiper, and sandhill crane were completed.

Wolverine/Lynx---Only three of the winter track survey routes were completed in 1995. No wolverine or lynx were found. Not associated with the above surveys were reports of two wolverine sightings and one set of wolverine tracks located on or near the Forest in 1995.

Townsend's big-eared bat---Surveys for bats were conducted on the Baker and HCNRA Districts. The monitoring resulted new distribution points for Townsend's big-eared bats and a number of additional "candidate for listing" bat species.

Upland sandpiper---Two historical nest sites were monitored on the La Grande District. One individual sandpiper was located.

Sandhill crane---One sandhill crane nest was checked near Thomason Reservoir. Cranes were present in the area. No information on reproductive success was gathered.

Other studies that could provide some information on sensitive species are being conducted. A level II land bird survey of riparian areas is being conducted on private lands near the Wallowa Valley District. A portion of two routes are within the Forest's protection boundaries. Breeding bird surveys and Christmas bird counts could provide additional information.

Action to be Taken

Current budgets do not allow for monitoring at levels required in the Forest Plan. Monitoring is often accomplished by cooperative funding or when projects, such as timber sales, require monitoring. Continue basic inventories of sensitive birds and mammals when funding is available.

Explore options for the completion of BEs on projects with no funds for such purposes.

Normally where money is not available for a biological evaluation the project will not proceed. However, the level of evaluation will depend on the potential risk associated with the proposed project. Certain projects may proceed without benefit of a formal biological evaluation.

Purpose of Monitoring

To determine if project objectives and practices are adequate to protect fish species viability and to prevent uplisting of species.

Results and Evaluation

Stream inventories were done on 150 miles of inland and anadromous stream habitat for threatened chinook salmon, and sensitive steelhead and bull trout.

The fisheries program coordinated with ODFW in conducting sensitive fish presence/absence surveys. These surveys were directed at redband rainbow and bull trout on 35.2 miles of stream.

Redd counts and bank stability monitoring were conducted on Imnaha River, Big Creek, and Lick Creek to determine grazing impacts. No impacts occurred. See monitoring item 24.

Monitoring to ensure compliance with biological opinions and ESA was conducted by the districts in the Snake River endangered chinook drainages. See monitoring items 24, 25, and 26.

Action to be Taken

Continue to monitor, including continuation of the stream survey program.

Purpose of Monitoring

To determine if inventories, project objectives, and project practices are adequate to protect plant species viability and to prevent uplisting of species.

Results and Evaluation

1995 Sensitive Plant Surveys

Populations Found in 1995								
SPECIES NAME	BAK	EAG	HC NRA	LAG	PIN	UNI	WAV	TOTAL
Allium brandegei				1		2		3
Calochortus longebarbatus var. longebarbatus				1				1
Dryopteris filix-mas	1							1
Lomatium erythrocarpum	3							3
Mirabilis macfarlanei			1					1
Pellaea bridgesii	1							1
Phlox multiflora				2				2
Ranunculus oresterus	11					3		14
Silene spaldingii							1	1
TOTALS	**16**	**0**	**1**	**4**	**0**	**5**	**1**	**27**

Surveys and Biological Evaluations

Virtually all projects with signed decision notices underwent the BE process for sensitive plants. The populations on the chart above were found during the surveys for these projects. Where sensitive plant populations occur in project areas, mitigations were developed and incorporated into the decision notices. No formal monitoring of the effectiveness of mitigations was done in 1995.

Species Management Guides (Conservation Strategies)

No species management guides for sensitive plants were written in 1995. Current funding and priorities do not allow for work on these documents.

Action to be Taken

Continue to survey in order to discover new populations; mitigate for projects when necessary to ensure population viability. If funding allows, monitor effectiveness of mitigations recommended in NEPA documents. If funding and priorities change, write and implement species management guides for sensitive plants.

Monitoring Item 36
MacFarlane's Four-O'Clock (mirabilis macfarlanei)

Goal

Protect and manage for the perpetuation and recovery of the MacFarlane's four-o'clock.

Purpose of Monitoring

To gain baseline information on plant phenology, number, height, diameter, herbivory, and seedling recruitment.

To determine long-term population trends.

To determine if livestock management objectives outlined in annual operating plans are adequate to maintain long-term viability.

Threshold of Variability

If monitoring data shows a declining population trend after five years data has been collected.

Results and Evaluation

No searches were specifically conducted to locate new populations of MacFarlane's four-o'clock. However one population of approximately fifty plants was found during other botanical work. An estimated 20% of suitable habitat within the HCNRA has been searched for *mirabilis* colonies.

Data was collected from ten permanent monitoring plots at the Tryon Bar and West Creek populations. This is fifth year data was collected from Tryon Bar and West Creek. The Fence Creek population was not monitored in 1995.

A challenge cost share project with the Oregon Department of Agriculture was completed to analyze the data from the population monitoring. This report has been completed and is on file at National Forest Headquarters. The conclusions drawn from the analysis indicate that the populations are currently stable, but very little recruitment of new individuals is occurring. The report also suggests some changes in the data gathering techniques that will make the field work more efficient and should still allow detection of trends in the populations.

A challenge cost share project with Utah State University to analyze the genetic variability of mirabilis populations was completed in 1995. The report is on file at the Supervisor's office. This report provides insight into the clonal growth habit of the species, and confirms that it is virtually impossible to distinguish individual plants in the field.

Gully erosion within the Fence Creek population, first detected in 1993, became more severe during the winter and spring of 1994. Water running off Road 4260 drained into the population, creating a 18-24 inch deep gully. It appeared that individual plants had roots exposed and/or were covered with sediment but the exact number could not be determined because no permanent plots are located in that area. Corrective

action was taken in the summer of 1994 by improving the roadside ditch and installing a new culvert to divert water away from the population. The effectiveness of this action was found to be inadequate 1995, and will be monitored during the spring of 1996 to see if the situation can be corrected without road reconstruction.

To correct the problem of livestock trailing along a newly constructed fence adjacent to the Kurry Creek population, an additional drift fence was constructed in 1993 to direct livestock away from the population. In 1994 an electric fence was added to the drift fence to enhance the effectiveness. The electric fence was stolen in 1995, and the other fence proved to be ineffective in keeping the cattle out of the *mirabilis* population. Construction of a fence designed to totally exclude livestock from this population is planned for 1996 and will be incorporated into the Pittsburg cattle allotment AMP. The effectiveness of this action will continue to be monitored.

The population at West Creek was partially fenced in 1993. The remaining unfenced area showed evidence of severe erosion from cattle trailing in 1995. It has not been determined if this erosion has seriously impacted the individual plants, but there is potential for negative impacts. This population is scheduled to be entirely fenced from cattle in 1996, and the fence plans will be incorporated into the AMP for the Pittsburg Allotment.

In addition, two other populations in the allotment are scheduled to be fenced in 1996, as part of the Pittsburg Allotment AMP. Effectiveness monitoring of all of these fences will continue. If the fences prove to be ineffective, further mitigations may be initiated to protect the populations from domestic grazing.

Action to be Taken

Continue to monitor.

Build fences to exclude cattle, as outlined in the plans being developed for the Pittsburg Allotment.

Continue to cooperate with other agencies and gather information which will meet the objectives of the recovery plan.

Implement corrective action as outlined above.

Monitoring Item 37
Greenman's Lomatium (lomatium greenmanii)

Goal

Greenman's lomatium is a federal candidate for listing under the ESA. It is in Category 1, Species for Which There is Adequate Information to Warrant Listing. The most significant population of this species occurs on the top of Mt. Howard, on the Eagle Cap RD. There is a commercial tram that brings 35,000 visitors to the area each summer. The Forest entered into a conservation agreement with the U.S. Fish and Wildlife Service in 1992. In this agreement the Forest Service established the following goals:

Complete and implement a species management guide for the species by the end of calender year 1992.

Develop and implement a monitoring plan to assess impacts to the species.

Any new projects in known or potential Greenman's lomatium habitat will go through the biological evaluation and NEPA processes.

The annual operating plan and future allotment management plan for the Mud-Duck Sheep Allotment will outline conservation measures for Lomatium greenmanii at the Mt. Howard site.

Work with the tram operators to ensure that human visitors to Mt. Howard do not adversely impact the population.

Collect seed to be stored at the Berry Botanical Garden.

Consult with the USFWS on all proposed monitoring plans, management plans, habitat improvement plans, and biological evaluations.

Results and Evaluation

No work has been done on the species management guide.

The monitoring project was initiated in 1992, and the plots were read again in 1993. In 1994, personnel were not available to reread these plots due to their being assigned to fire duties during the time that monitoring needed to be done. In 1995, no monitoring was done, due to lack of funding and other projects deemed to be a higher priority.

In 1995, the tram operators developed plans to make improvements to the sewage system at Mt. Howard in 1996. The Forest Service fully consulted with USFWS as part of the biological evaluation process. Mitigations were developed and will be implemented to minimize negative impacts to the population at the site.

The annual operating plan had a clause added in 1993 that states "there shall be no sheep within 1/2 mile from the top of Mt. Howard." According to the range zone manager (Howard Lyman) in 1993-1995 the sheep were never closer than 1/2 mile from Mt. Howard.

In 1992 signs were erected around the Mt. Howard site that instruct visitors to stay on the trails. These appear to have helped control off-trail travel significantly; however, many people are still hiking off the trails. Some trail improvements made in 1993 seems to have helped encourage people to stay on the trails.

No progress has been made towards seed storage. No seed has been collected.

No new monitoring plans, or species management guides have been developed to be reviewed by the USFWS. The biological evaluation relating to the sewage improvement project was reviewed by the USFWS.

Action to be Taken

Re-read monitoring plots at Mt. Howard in 1995.

Reevaluate the contract with the tram operators to formally incorporate any needed changes to their operating plan.

Finish writing the species management guide for the species; this will probably not occur in the near future, unless funding and priorities change.

Monitoring Item 38
Minerals

Goal

Provide for exploration, development, and production of a variety of minerals in coordination with other resources and ongoing rehabilitation of mine sites.

Purpose of Monitoring

To determine whether standards and guidelines for minerals operations are responsible and effective in providing resource protection. To determine if the standards and guidelines are being implemented correctly.

Threshold of Variability

If standards and guidelines are unreasonable or ineffective in meeting goals, or are not being implemented correctly.

Results and Evaluation

All plans of operation involving surface disturbing operations were monitored throughout the mining season. Sporadic and weekend assessment operations were monitored at least once.

There were no cases reported in which resource objectives were not met based on this monitoring.

Another level of monitoring includes S&G implementation monitoring as described in monitoring item 2. Implementation of all S&Gs are reviewed.

This level of monitoring continues to show that there are several S&Gs that cannot be met in the short term during placer mining operations. These standards include:

- Limiting detrimental soil conditions.
- Maintaining riparian and streamside vegetation.
- Giving preferential considerations to riparian dependent species.
- Maintaining biological diversity at the micro scale.
- Maintaining old-growth qualities, including solitude.

Although these S&Gs may not be met in the short term, data is lacking to address whether resource objectives are being met. Reclamation plans are developed with the objective of meeting resource goals in the long term.

Concerns have been expressed about not having sufficient people to provide adequate input from resource specialists in the planning process.

There appear to be conflicts between certain S&Gs and allowing reasonable mining operations under the mining law.

Action to be Taken

Continue to monitor.

The concerns about being able to meet S&Gs in the short term while allowing reasonable mining operations have been submitted to the Regional Forester as a potential issue to be considered in a Forest Plan adjustment. Further evaluation will be conducted in support of the Forest Plan adjustment process. The adjustment process is currently on hold until the ICBEMP and EIS are completed.

Monitoring Item 39
Wilderness

Goal

Manage wilderness areas in accordance with the values specified in the Wilderness Act of 1964 and the Oregon Wilderness Act of 1984.

Purpose of Monitoring

To determine if wildernesses are being managed in accordance with the Wilderness Act (P.L. 88-577) as amended.

To ascertain if wilderness use levels are within the limits established for each Wilderness Resource Spectrum class.

To summarize the physical/biological, managerial, and social setting of each Wilderness Resource Spectrum to assure their maintenance is consistent with the standards for wilderness management.

Threshold of Variability

Failure to implement Forest Plan standards and guidelines correctly.

Results and Evaluation

The Wilderness Act challenges us to administer the wilderness resource "to leave them unimpaired for future use and enjoyment as wilderness." The Act requires us to keep wilderness "affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." The following addresses this direction:

Physical/Biological

Air Quality

As in past years, air quality is assumed to be good to excellent in Eagle Cap, North Fork John Day, Hells Canyon, and Monument Rock wildernesses. This assumption is based on visitor and field crew reports. The only exception to this is reported by the Hells Canyon and Eagle Cap wildernesses, which are adversely affected by wildfire and controlled burning outside of wilderness. This is a seasonal and temporary occurrence.

Three lightning fires were managed as prescribed natural fires within the North Fork John Day Wilderness, and effects on air quality were minimal, localized, and short-term in nature. Smoke dispersal was good.

Soils

Examples of soil exposure, displacement, or compaction from human activities are documented in all wildernesses. A 1993 study in the Eagle Cap Wilderness determined that approximately 86% of the campsites meet Region 6 standards for barren core area for semi-primitive WRS (wilderness recreation spectrum) and 75% for primitive. Most of the exposed soil problems are related to a few heavily used areas. The other wildernesses have less soil exposure because they receive less use.

Standards and guidelines are being developed for the Hells Canyon Wilderness through the comprehensive management plan. A few isolated areas of high recreational and livestock use show signs of disturbance and compaction.

An inventory of the extent of soil disturbance and compaction at campsites within the North Fork John Day Wilderness is ongoing.

Overall displacement and erosion of soils resulting from human activity are considered to be occurring at a rate that closely approximates natural processes except at trailheads, trails, administrative sites, and popular campsites located primarily around lakes. A measurable standard which reflects this rate has not yet been established and inventories of exact conditions is ongoing.

The forces of nature (in the case of fire, landslides, etc.) have had natural effects on soils. However, the natural ecological actions and reactions appear to be functioning appropriately for the wilderness resource. There appears to be no adverse off-site effects.

Water Quality

Water quality, while not recently tested, is thought to be high and not significantly impacted by human and grazing activities. Visitors are advised to treat the water before drinking due to some reports of giardia.

The forces of nature (in the case of fire, landslides, etc.) have had natural effects on water in some cases. However the natural ecological actions and reactions appear to be functioning appropriately for the wilderness resource. There appears to be no adverse off-site affects.

Vegetation

Examples of vegetative losses from human activities are documented in all wildernesses. A 1993 study in the Eagle Cap Wilderness determined that approximately 40% of all campsites have lost at least 50% of their natural vegetative cover. Approximately 20% of all campsites have lost at least 75% of their vegetation. Eagle Cap Wilderness reports they completed the first phase of campsite revegetation study for future publication by the Leopold Institute. The loss of vegetation in the other wildernesses is observed to be less. This would be reasonable since the other wildernesses receive less use.

In the North Fork John Day Wilderness, healthy, native vegetation is being maintained around most campsites, but some campsites, especially those around lakes have more than 400 square feet of loss of ground cover, and a slight loss of live and dead trees at these sites has occurred due to human activity.

Evidence of vegetation loss is minimal in the Hells Canyon Wilderness. Anthropogenic impacts, past and present, are evidenced by small areas of low seral stage plant communities and noxious weed infestations. Tyron Creek and Long Pine Creek were sprayed for star and scotch thistle infestations in 1995. Monitoring was conducted in Saddle Creek drainage as part of fire monitoring.

Changes in vegetation are occurring in all wildernesses as a result of suppression of natural occurring fires. The lost of or substantial reduction of the natural process of fire has probably caused the greatest impact on the vegetative component of the wilderness resource.

The forces of nature (in the case of insects, etc.) have had natural effects on vegetation. However, the natural ecological actions and reactions appear to be functioning freely in the wilderness with the exception of fire. There appears to be no adverse off-site affects.

The introduction and spread of noxious weeds and invasive plants continues to be a concern and is considered one of the most prominent threats to preservation of the wilderness resource.

Scenery

Scenery is generally thought to be excellent, with three wildernesses reporting that no human activities, with the exceptions of campsites, have altered the wilderness scenic resource. The 1993 Eagle Cap Wilderness Study, however, did find that 63% of the inventoried campsites are within 200 feet of a trail, nearly 75% of campsites are within 100 feet of water (81% associated with lakes), and 70% within 200 feet of another camp. These do not meet current Region 6 standards.

Livestock

Livestock grazing is permitted within all or portions of each wilderness, except the Baldy Unit of the North Fork John Day Wilderness. An environmental assessment which removes sheep from the Oregon side of the HCNRA to resolve conflicts between bighorns and domestic sheep has been completed and implementation will occur in 1996. All areas are reporting that the range condition within wilderness is in good condition, and is generally in an upward trend.

Fish and Wildlife

No stocking of fish occurs except in the high lakes of the Eagle Cap Wilderness. Fish and wildlife habitat in all wildernesses is estimated to be good to excellent.

Some specialists are becoming concerned that the restriction of fire for the last several decades may have negative effects on the natural ecological processes affecting fish and wildlife. This concern is associated with vegetation and nutrient cycling change that are brought about though fire.

In the North Fork John Day Wilderness, no fish habitat enhancement projects were conducted; no chemical treatment of water resources occurred; no reestablishment of native, endangered or threatened species took place; and no predator control measures were implemented.

Hells Canyon Wilderness reports that ODFW deer and elk studies concluded that the deer populations are low to steady, and that elk numbers are on a slight decrease. Chukar numbers were also reported low. Overall, conditions are reported to be excellent.

Evidence of Human Activity

Based on total acres, there is minimal evidence of human activities. However, along major travel routes, around popular camping areas, administrative sites, and areas which have had a history of mining or ranching, evidence of human activities are present.

As more and more fires are suppressed in wilderness, the effect of the fire suppression efforts, including stumps, other saw cuts, and fire lines become more evident.

Fire

In 1995, approximately 621 wilderness acres in nine separate fires burned on the Wallowa-Whitman National Forest. Of these acres, 537 were prescribed natural fires, 77 acres were due to human-caused ignitions, and seven acres were lightning-caused.

Social

Encounters

Based on the Eagle Cap Wilderness Study and other field observations in the wildernesses it is reasonable to assume that all wildernesses except portions of the Eagle Cap Wilderness are within the Region 6 standards. The Eagle Cap Wilderness Study identified several trails that exceed Region 6 standards for encounters.

Group Size

Group size is estimated to be within standards for all wildernesses. In at least one case, a violation for exceeding group size was written, and it is assumed that more than just than one incident of exceeding the size standard has occurred.

Camps

According to the Eagle Cap Wilderness Study and based on physical camp location, the Region 6 standards are not being met. However, not all camps are occupied at all times. This was indicated by the study which found approximately 55% of those surveyed had no other group camped within sight or sound. The study indicated that it did not have enough data to indicate that the occupied campsite standard was not being met but did indicate areas where there may be concerns.

The Eagle Cap Wilderness Study did indicate that many camps are closer to trails, meadows, lakes, and streams than the Region 6 standard suggests.

The other wildernesses are estimated to better meet this standard because they get less overall use. However, because campsites are often clustered at popular destinations and some parties voluntarily camp within sight and sound of other groups, there are probably similar situations in all of the wildernesses. A limits of acceptable change study continues in the Hells Canyon Wilderness. North Fork John Day Wilderness reports that campsites can be found closer than 200 feet from streams; however, these campsites existed prior to wilderness designation in 1986. In both the Eagle Cap and North Fork wildernesses, specialists believe there may be more and additional impact caused by shifting use from the existing sites to newly established sites outside of the 200 foot restriction; however, in specific cases, a CFR closure for certain sites may be warranted.

Livestock

There appears to be better compliance with holding stock 200 feet away from lakes and water than for holding stock away from camping areas and out-of-sight of trails. Much of the recreational stock use occurs during hunting seasons. Many times, the stock are held overnight outside of the wilderness.

PETS

No significant concerns have been identified concerning PETS (proposed endangered and threatened species).

Managerial

Off-Site Evidence of Control: Wilderness education of groups, in person and through bulletin board messages, continues to have a positive effect on the wilderness resource. Hells Canyon reports that they are beginning to see more success in visitor compliance on camp clean up and resource protection from school room and field contacts. Eagle Cap reports that educators are asking for an increase in visitor education programs.

On-Site Evidence of Control: A variety of public contacts were made with the public including wilderness guards, trail crews and individual Forest personnel. Field observation have suggested that these contacts are having a beneficial effect.

Signs: Signing in the wildernesses is minimal. There are signs at the wilderness entrances and a limited number of directional signs at trail intersections. Signing has been improved at some trailheads to address specific concerns and to provide better education.

Trails: Funding did not allow for up to 50% of all wilderness trails to be maintained. Local service and users groups maintenance of trails is increasing; however, the backlog of trail maintenance continues to grow and is of increasing concern to both managers and wilderness visitors.

Monitoring for 1995 concludes that the wildernesses, for the most part, are being managed according to management direction and provisions of the Wilderness Act. The Eagle Cap Wilderness Study, did however, indicate several areas where Region 6 standards are not being met and efforts are being made to correct these deficiencies through implementation of the Eagle Cap Wilderness Stewardship Plan which began in 1995.

The wilderness prescribed natural fire portion of the Fire Management Action Plan (Chap. 40) have been completed for all wildernesses on the Wallowa-Whitman. Implementation began in 1995.

WRS standards appear to be met in most cases. Those that are not being met are being addressed through the NEPA process.

Action to be Taken

Continue to monitor.

Complete wilderness boundary marking and management plans for each wilderness, as outlined in the implementation schedules.

Continue to implement the Eagle Cap Wilderness Stewardship plan .

Implement prescribed natural fires plans on all wildernesses.

Monitoring Item 40
Wild and Scenic Rivers

Goal

To protect and enhance the values for which each wild and scenic river was designated, including the identified ORVs (outstanding remarkable values), free flowing condition, and water quality. Also, to protect and to the extent practicable, enhance ORVs on rivers under study for inclusion into the national wild and scenic rivers system (Forest Plan study rivers).

Purpose of Monitoring

To determine if designated rivers and associated river corridors are being managed in accordance with the Wild and Scenic Rivers Act. Also, to ensure that Forest Plan study rivers are managed so as not to jeopardize their potential eligibility, classification, or suitability for inclusion in the national wild and scenic rivers system.

Threshold of Variability

If there is a failure to meet the law or direction in the Forest Plan or River Management Plans.

Results and Evaluation

Lostine Wild and Scenic River: Entire Wild segment lies within the Eagle Cap Wilderness. Conditions have not been adversely affected by management activities and natural processes are dominating. Projects within the Recreation section include removal of 100 hazardous trees, and relocation of six campsites from locations within 100 feet of the river. Traffic barriers and river bank access steps were also installed to control vehicle and pedestrian access to the river. Foreground visual quality was enhanced as a result of these measures. No damage to cultural sites was reported.

Imnaha Wild and Scenic River: Wild segment of this river lies within Eagle Cap Wilderness. Conditions have not been affected by any management activities and natural processes are dominating. Campground restoration efforts have enhanced the primitive ROS within the Wild segment. No damage to cultural sites has been observed, and no enhancement activities have occurred. Water temperature is being monitored at the wilderness boundary. Sediment movement and changes in channel formation are being studied in three locations. The results of these studies are not yet available.

Minam Wild and Scenic River: Wild segment of this river lies within Eagle Cap Wilderness. Conditions have not been adversely affected by management activities and natural processes are dominating. A trail bridge was replaced in 1995 and standards and guidelines relating to management of wild and scenic rivers were met or generally met. Management activities to restore campsites have enhanced the recreation value. No mining or recreational dredging activities have been observed. Water quality and flow data is being collected downstream of the wild and scenic river corridor at the confluence of the Minam and Wallowa Rivers. Results are not yet available.

Eagle Creek Wild and Scenic River (Eagle Cap portion only): Wild segment within Eagle Cap Wilderness. Conditions have not been adversely affected by management activities and natural processes prevail. No mining or recreational dredging or disturbance of the geology/paleontology have been observed. No damage to cultural sites has been observed. No deterioration of range conditions has been observed or documented.

North Fork John Day Wild and Scenic River (Baker portion only): A monitoring trip was conducted in October 1995. Results show standards and guidelines for management of wild and scenic rivers were met at the 100-105% level. Several enhancement activities were outlined during the review as follows: Camping site upgrades within the corridor are planned pending funding. Further surveys of ORV impacts to dispersed sites will occur and a maintenance plan for road 7300380 that follows the wild and scenic river will be completed. The watershed analysis for the area will include specific rehab and restoration plans. The corridor will be excluded from firewood gathering. Signs will be installed to educate visitors about the importance of the corridor, and to extol some of the outstandingly remarkable values.

Action to be Taken

Continue sharing information about interim guidelines for Forest Plan study rivers and requirements to complete Water Development Analyses on all projects planned within both designated and study river corridors.

Continue to request funding to fully implement the approved River Management Plans.

As River Management Plans are completed, revise the interim monitoring forms for each river to reflect monitoring specified in each plan.

Monitoring Item 41
Recreation Setting

Goal

Maintain a semi-primitive social and physical setting showing little or no evidence of human activity and meeting the needs of people seeking a place where there is little interaction with other users.

Encourage, establish, and sustain a diverse, balanced, and stable range of recreation services and facilities on the Forest.

Purpose of Monitoring

To determine whether Forest settings with desirable recreation attributes are being managed to provide high quality and stable opportunities for outdoor recreation.

To monitor recreation developments in order to ensure that they are maintained to a standard that provides for customer satisfaction.

To provide assurance that physical, social, and managerial attributes are maintained at levels identified in the S&Gs.

Threshold of Variability

If there is a failure to meet S&Gs for high quality recreation opportunities within each ROS (recreation opportunity spectrum) class.

Results and Evaluation

Information for the recreation setting monitoring item was accumulated through discussions with users of sites and facilities, and from observations of forest personnel.

The Forest appears to be providing a wide range of recreation opportunities to the general satisfaction of users. Use of the forest by recreationists is growing; however, the positive comment most often received is that visitors appreciate the solitude this forest's sites and facilities provide. Existing facilities are being managed consistent with the ROS, and S&Gs are being met.

Most groups personally contacted or observed averaged five to six people, but ranged from 1-50. Groups over 12 were generally connected with a family reunion. Many visitors reported seeing several vehicles ("lots" and "many" were descriptions frequently used), but with one exception, visitors stated that the vehicular traffic did not disturb their activities.

Use by mentally or physically challenged visitors appears to be increasing, but slowly. The very gradual increase is thought to be in conjunction with more of the Forest sites having some degree of accessible facilities installed, particularly toilets. A survey of needs to meet minimum and maximum accessibility requirements was conducted in 1994. Funding to complete minimum accessibility requirements was estimated at about $1,000,000 for campgrounds and about $250,000 for day use facilities across the forest. Specific funding for accessibility has not yet been available; however, recreation specialists are making improvements to the extent they can with regularly appropriated funding.

Rating of quality of sites averaged four on a scale of one (low) to five (high). Most positive comments centered on lack of crowds. Wildflowers, quality of site, scenery, and wildlife also were frequently referenced as positive attributes. Negative comments related to such things as noisy neighbors, bad weather, lack of stock facilities, too many stock and lack of salvage of timber.

Many of the recreation facilities on the forest are located along streams. While this is found to be an attraction for most visitors, it can create conflicts with other resources, particularly along anadromous fisheries streams. Forest specialists are working to mitigate those conflicts where necessary by moving sites, closing sites, hardening sites, or providing a more appropriate level of visitor education about anadromous fish protection.

Overall, the results of monitoring are acceptable.

Action to be Taken

Continue to monitor.

Review monitoring questions to ensure the goal of maintaining semi-primitive recreation opportunities is being adequately measured.

Monitoring Item 42
Off-Road Vehicle (ORV) Use

Goal

Manage ORV use to provide for recreation opportunity in a manner consistent with other resource management objectives.

Purpose of Monitoring

To see if Forest settings with desirable recreation attributes are being managed to provide high quality and stable opportunities for ORV use.

To determine if there are conflicts with other recreation or other resource management objectives.

Threshold of Variability

If there is a failure to meet standards and guidelines.

Results and Evaluation

Off-road vehicle use is occurring at various levels and in various ways across the Forest. Most units have not designated ORV use areas. In these cases, use continues at various levels across the unit with the exception of closed areas/routes. One unit, La Grande RD, has worked with local ORV clubs to design and establish a suitable and acceptable designated area. The Wallowa Valley RD is presently planning an ORV designated area, as well.

Units are reporting that ORV use is slowly increasing, but that management of the use is meeting the intent of the standards and guidelines outlined in the Forest Plan.

Problems, however, appear to be somewhat on the increase in the areas of user conflict and resource protection. Eagle Cap Wilderness reports very limited ORV use on the unit, but that users are sometimes straying onto closed trails entering wilderness, and into the wilderness itself. In cases where trails leading into wilderness aren't closed outside the wilderness boundary, conflicts with horse users heading for the wilderness may occur.

HCNRA reports that although no formal monitoring has occurred, wildlife specialists are concerned that the potential for disturbance of bighorn sheep by ORV use in the lower Imnaha area may exist. Similar concerns for effects on wildlife have also been expressed by specialists on Baker RD, but again, no formal monitoring has occurred to substantiate that concern.

Some minor impact at specific cultural sites in the Washington Gulch area on the Baker RD was reported. A road closure has been imposed to alleviate the problem. About 22 closed roads on the Baker RD received some unauthorized ORV entry in 1995.

Conclusions from the 1995 monitoring is that ORV use is primarily meeting the intent of the standards and guide, but that as use increases so are the concerns about effects on other resources, including wildlife and heritage. These concerns will be taken into account during the Forest Travel Management Plan process.

Action to be Taken

Continue to monitor. Address concerns in the update to the Forest Travel Management Plan.

Monitoring Item 43
Visual Resource Objectives

Goal

Manage all National Forest lands to obtain the highest possible visual quality, commensurate with other appropriate public uses, costs, and benefits.

Purpose of Monitoring

To determine if visual resource objectives for treated acres and created opening size are being met.

Threshold of Variability

If visual resources fail to meet standards and guidelines.

Results and Evaluation

No unit reported any activities within which Forest standards for VQOs (visual quality objectives) were not met.

A monitoring review of the Lostine viewshed found that despite 100 dead trees being removed from the viewshed through the Lostine Recreation Site Hazard Tree Removal Project, the viewshed remains largely unaffected. Slash was treated and stumps were cut flush to mitigate the activity.

This viewshed is 1/2 mile wide, is totally within the wild and scenic river corridor, and is surrounded by the Eagle Cap Wilderness. It is largely undeveloped and natural appearing, having had little influence by human activities. The only exception to this natural condition occurs in the bottom of the viewshed where recreation developments, such as campgrounds and trailheads, are visible, but do not dominate the landscape. The hazard tree removal project was necessary in this portion of the viewshed. The cumulative effects of this project met the desired visual condition for the viewshed.

Based on visual resource monitoring, visual resource objectives appear to be an important and recognized part of project planning on the Forest. Progress is being made in completing viewshed management plans for Level I corridors, with about 40% of the 42 Level I viewsheds having completed plans.

Action to be Taken

Continue to monitor.

Continue to complete Level I viewshed plans.

Monitoring Item 44
Cultural and Historic Site Protection, Rehabilitation, and Interpretation

Goal

Provide for the identification, protection, enhancement, and interpretation of cultural resources.

Purpose of Monitoring

To determine if activities are designed to protect National Register characteristics of unevaluated and significant cultural resource properties as stated in the Forest Plan.

To assess whether appropriate stabilization, rehabilitation, or mitigation of damaged sites eligible for inclusion in the National Register of Historic Places is being done as stated in the Forest Plan.

To assure protection/mitigation measures are effective in meeting cultural resource management objectives.

To determine whether survey methods are adequate to identify all locatable sites.

Threshold of Variability

If there is a failure to adequately protect any significant cultural resource property or unevaluated site.

Results and Evaluation

Six of seven ranger districts reported information for this monitoring item. The following results are based on that information.

A total of 333 cultural sites were visited in 1995. Of those, 104 were located where potentially impacting activities have occurred. Two sites were impacted as described below.

- A large prehistoric site on the Snake River is being impacted due to erosion during high flow regimes.
- A collapsed cabin was disturbed by mining activity. The structure was determined to not be significant, nor eligible for the National Register.

The two sites represents 2% of the sites where there was potential for impact. The threshold, "failure to adequately protect any significant cultural resource property or unevaluated site," has been exceeded due to erosion during high flows on the Snake River.

Action to be Taken

Continue to monitor.

Identify mitigation appropriate for the site being impacted.

Continue ongoing education and awareness efforts to assure that all individuals involved with project implementation are aware of the survey and protection requirements for cultural resources.

Pursue additional funding so adequate monitoring can be accomplished.

Monitoring Item 45
Budget

Goal

Provide for full funding of all resource programs and activities including monitoring.

Purpose of Monitoring

To determine whether annual Forest programs and budgets are adequate to fully implement the Forest Plan.

Results and Evaluation

In the following table, the column entitled **Forest Plan 10 Year Total** displays the estimated cost of implementing the Forest Plan for the first decade based on 1982 assumptions and operating procedures.

The **Planned Program Budget for 1995** was developed in 1992 to reflect a projected annual cost of implementing the Forest Plan for 1995. Actual allocations from the Regional Forester, based upon appropriations from Congress, are shown under **Actual 1995 Budget.** The final two columns show what percent of the planned program budget was funded, first for 1995 and then cumulatively since 1992. All figures are in 1995 dollars.

Forest Program Budgets
Forest Plan Projected Program Budget and Actual Budget, 1991-1995
(1995 M$)

Program Area	Forest Plan 10-Year Total	Planned Program Budget for 1995	Actual 1995 Budget	Actual as a % of Planned Program	Cumulative for Decade since Plan Approval (%)
National Forest System Appropriations:					
Minerals Area Mgmt	1,940	265	459	173	112
Real Estate Mgmt	2,390	135	[1]309	229	98
Landline Location	4,430	442	123	28	52
Facilities Mtce	3,680	521	491	94	54
Coop Law Enforcement	0	64	79	123	64
Road Mtce	13,290	1,638	1,232	75	70
Trail Mtce	3,110	512	[2]0	[2]0	83
Tbr Sale Admin/Mgmt	40,780	2,823	1,106	39	89
Reforestation & TSI	25,190	3,997	3,153	79	85
Recreation/Wilderness	17,500	2,395	2,512	105	84
Wildlife & Fish	6,090	2,283	975	43	61
Range Mgmt	11,200	1,424	1,191	84	58
Soil/Water/Air Mgmt	4,320	1,105	500	45	73
Heritage Resources	2,300	361	150	42	59
Ecosystem Planning	0	0	1,252	[3]NA	[3]NA
General Administration	30,330	2,562	2,214	86	72
Total N.F. System	**$170,360**	**$20,528**	**$15,746**	**77%**	**77%**

Program Area	Forest Plan 10-Year Total	Planned Program Budget for 1995	Actual 1995 Budget	Actual as a % of Planned Program	Cumulative for Decade since Plan Approval (%)
Construction:					
Facilities	430	0	0	0	0
Recreation	790	2,651	846	32	98
Forest Road	46,950	11,623	2,040	18	38
Trails	1,550	1,208	467	39	43
Total Construction	**$49,310**	**$15,482**	**$3,353**	**22%**	**46%**
Other Funds:					
Forest Fire Protection	26,320	4,155	4,033	97	88
Land Acquisition	900	34	378	1112	93
Range Betterment Fund	1,260	125	138	110	108
Brush Disposal	5,930	204	190	93	86
Tbr Purch Rd Construct	55,940	2,139	61	3	15
Timber Salvage Sales	2,690	5,469	4,359	80	176
K-V Ref/TSI/Other	30,860	6,179	4,469	72	96
CWFS-Other	5,890	670	348	52	87
State & Private	0	0	226	100	[4]390
Total Other Funds	**$129,790**	**$18,975**	**$14,202**	**74%**	**[4]101%**
TOTAL	**$346,050**	**$54,984**	**$33,301**	**60%**	**[4]78%**

[1] Although the planned program budget for FY 95 was submitted for the Wallowa-Whitman only, Congress allocated money to a zoned team who does work on the Wallowa-Whitman, Umatilla, and Malheur National Forests.

[2] Trail maintenance funds were included in the recreation/wilderness budget.

[3] Funding for ecosystem management was not a budget line item prior to FY 95 so was not requested as an individual project program.

[4] The cumulative percentage for State and Private is artificially high because of inconsistencies in how the actual budget is allocated from one year to the next. It also affects percentages for "Total Other Funds" and the "Total."

While reviewing funding levels for NFS (National Forest System) appropriations, it is helpful to recognize that although they are separate allocations (budget line items as identified by Congress), many of them are used to complete the same project. For example, if there are insufficient funds to survey and mark heritage resources, timber sales or campground construction cannot take place.

The money Congress allocated for ecosystem management was primarily used for watershed assessments.

With the exception of Fire Protection, Land Acquisition, and State & Private, "Other Funds" are not a direct appropriation from Congress.

A continuing trend of decreasing budgets became very apparent in 1995 with certain work activities funded well below program maintenance levels. Many of the budget line items for NFS funding funds were less than 50%, and as low as 39% for our timber sale program. NFS funds provide the bulk of our financing for resource protection, and it is becoming increasingly difficult to stretch the limited funding to control resource damage. Construction projects were funded at 22%, reflecting a dramatic decrease in construction projects being designed in the current atmosphere of reduced government spending.

Action to be Taken

Continue to develop program plans as near to desired levels as possible within the constrained programming guidelines imposed by Washington and Regional Offices.

Further evaluate updated budget information in support of the Forest Plan adjustment process. The adjustment process is currently on hold until the ICBEMP and EIS are complete.

Monitoring Item 46
Costs and Values

Goal

Verify that projected costs and values approximate actual costs and values.

Purpose of Monitoring

To determine if stumpage values are approximately as projected.

Threshold of Variability

The rolling two-year average stumpage value increases to at least 25% above the projected level used in the Forest Plan.

Results and Evaluation

This monitoring element was derived from the concern that 62,000 acres of forested land, which would otherwise not be available for harvest, is not scheduled for harvest due to economic considerations. If, during the life of the Forest Plan, the rolling two-year average stumpage value increases to at least 25% above the projected level used in developing the Forest Plan, approximately 5 MMBF will be offered for sale annually from these lands as a non-interchangeable component of the allowable sale quantity. Lands within the HCNRA are not to be considered in providing this additional volume.

Of the area identified, approximately 26,000 acres contain trees that are merchantable. Lodgepole pine fiber opportunity (small diameter material for chipping) on areas accessible by cable or helicopter logging systems account for 16,000 acres. An additional 8,500 acres contain the true fir types identified for "multitreat" (generally low volume per acre), on areas accessible by long span cable or helicopter logging systems. The remaining 1,500 acres are identified as lodgepole pine in areas accessible by long span cable or helicopter logging systems.

In the development of the Forest Plan, the decadal future stumpage value used for sawtimber was $174/MBF (1995 constant dollars). The following table compares the sawtimber outputs and values for 1994 and 1995 against Forest Plan projections. The rolling two-year average for stumpage values of sawtimber sold shows a 13.2% increase over Forest Plan projections, which does not exceed the designated threshold of variability of a 25% increase.

Sawtimber Outputs and Values

	Forest Plan Projections	1994	1995
Sawtimber Sold - MMBF	141	9.1	10.4
Total value of sawtimber sold (1995 MM$)	$25	$1.87	$1.96
Average value of sawtimber sold (1995 $/mbf)	$174	$206	$188
Percent change in sawtimber value (1995 $/mbf) of sold volume compared with Forest Plan projections	NA	+18.4%	+8.0%

Note: The figures for "Sawtimber Sold" is the figure for which associated values can be determined. This figure does not match the volume sold as identified in monitoring item 4.

Action to be Taken

Continue to monitor.

Purpose of Monitoring

To determine whether or not the major costs and values used in the Forest Plan analysis are in line with actual implementation costs and values.

Threshold of Variability

If costs and values are plus or minus 25%.

Results and Evaluation

The projected output of Forest-related goods and services, as determined in the Forest Plan, is predicated on a number of assumptions. One important set of assumptions are those which address the value or cost of outputs and services. Changes in actual costs and values from those projected in the Forest Plan may indicate the need to re-evaluate land-use allocations and the quantity and mix of goods and services derived from the use of National Forest land. This section will address costs and values in three categories: (1) Forest expenditures; (2) commercial timber revenues and costs; and (3) recreation values. While these categories do not cover all costs and values of potential importance in the Forest planning process, these categories do give a broad overview of recent trends and allow a comparison with a number of the major costs and values used in the Forest Plan analysis.

Forest Expenditures: The following table compares projected expenditures to actual expenditures. The Forest Plan projected first decade expenditures to average $33,517,000 per year (all dollar values are in 1995 constant dollars). Actual annual expenditures for the same activity categories for the period 1993 to 1995 averaged $45,569,000 which represents a 33% increase over Forest Plan projected expenditures.

Recreation, water resources, and wildlife and fish programs accounted for the highest increases in comparing actual expenditures to projected expenditures. Increases are as follows: recreation, 178%; wildlife and fish, 172%; water resources, 192%; mining and geology, 80%; general administration, 8%;

timber, 28%; wilderness, 63%; and range 7%. Fire protection increased the most, 334%, due to the wildfires that occurred on the Forest in 1994. Actual expenditures for facilities were 58% lower than projected. Lands expenditures were 23% less than projected. In 1994 and 1995, funds were expended under a new category, ecosystem management, primarily for the watershed assessment and project planning.

Aside from total expenditures in a given category, activity expenditures as a percentage of the total yearly expenditures give an indication of changes in program emphasis. The proportion of recreation, water resources, and wildlife and fish program expenditures to total yearly expenditures during the period 1993-95 are about double the projected proportions. Timber expenditures during the period 1993-1995 have averaged 25.8% of yearly expenditures. This compares with 26.8% projected in the Forest Plan. Facilities expenditures as a percentage of total annual expenditures averaged 12.5% for the last three years. This compares with the Forest Plan projection of 39.1%. Fire protection expenditures accounted for 30.7% of the average yearly expenditures primarily due to the wildfire suppression efforts during 1994.

Forest Expenditures: Forest Plan Projections and Actual Expenditures[1], 1993-95

Activities	Forest Plan Projected Expenditures $M/year (1995 $)	Activity as % of total yearly expenditures	1993-95 average yearly expenditures, $M/year (1995 $)	Activity as % of total yearly expenditures	Percent change from Forest Plan Projections [2]
Recreation	$1,425	4.2%	$3,965	9%	+178%
Wilderness	$298	0.9%	$485	1%	+63%
Wildlife and Fish	$574	1.7%	$1,560	3.5%	+172%
Range	$1,210	3.6%	$1,296	2.9%	+7%
Timber	$8,994	26.8%	$11,496	25.8%	+28%
Water Resources	$266	0.7%	$777	1.7%	+192%
Mining and Geology	$181	0.5%	$326	0.7%	+80%
Lands	$1,110	3.3%	$854	1.9%	-23%
Facilities	$13,154	39.1%	$5,581	12.5%	-58%
Fire Protection	$3,154	9.4%	$13,687	30.7%	+334%
General Administration	$3,153	9.4%	$3,401	7.6%	+8%
Ecosystem Management	NA	NA	$1,141	2.6%	NA
Total yearly expenditures [3]	**$33,517**	**100%**	**$44,569**	**100%**	**+33%**

1. Expenditures for fiscal years 1993-95 are from **Summary by Operating Plans and Expenditures**, Budget and Accounting, W-W NF Supervisor's Office.

2. In terms of annual expenditures.

3. Total yearly expenditures are for shown activities only, not total Forest expenditures.

Commercial Timber Revenue and Costs: The next table compares Forest Plan projections of commercial timber outputs, revenue, and costs to actual totals for the period 1993-95. The general trend since the mid-1980's has been characterized by decreasing revenue and increasing costs per mbf of harvested timber. Due to changes in accounting codes and expenditure tracking, the projected cost per mbf in the Forest Plan may not be exactly comparable with the costs obtained from TSPIRS (Timber Sale Program Information Reporting System).

The average cost per mbf of harvested commercial timber was $212 for the period 1993-95. This represents a 308% increase in costs over Forest Plan projections. Average revenue per mbf during the period 1993-95 was $174. This is 28% over that projected by the Forest Plan.

Commercial Timber Output, Revenue, and Costs[1]

Fiscal Year	Harvested Volume (MMBF)	Revenue[2] (MM$)	Average revenue per mbf (1995 $)	Average cost per mbf (1995 $)
1995	12.4	$2.3	$183	$270[3]
1994	31.2	$4.9	$161	$194[3]
1993	55.7	$9.4	$178	$173[3]
Forest Plan	185[4]	$16.0	$136	$52[5]

1. Commercial timber data from TSPIRS, Statement of Timber Sale Revenues and Expenses, Wallowa-Whitman National Forest, 1993, 1994, 1995.

2. Total commercial revenue (nominal dollars), TSPIRS Statement of Timber Sale Revenues and Expenses for specified year.

3. Total direct expenses, TSPIRS Statement of Timber Sale Revenue and Expenses for specified years.

4. Includes sawtimber and roundwood annual harvest totals for the first decade.

5. Derived from Management Information Handbook activity codes for timber. Due to changes in accounting codes and expenditure tracking, may not be directly comparable to above cost figures.

Recreation Values: Recreation values represent the estimated market price of the specified recreation activity in terms of recreation visitor days or wildlife and fish user days (see accompanying table for definitions). The 1990 RPA (Forest and Rangeland Renewable Resources Planning Act of 1974) values are the most recent agency approved estimates.

For the listed activities, the 1990 RPA figures are on average 57% higher than the values used in the Forest Plan analysis (1995 constant dollars). Cold-water and anadromous fishing are 365% and 98% higher, respectively. Small game, waterfowl, and upland game hunting are higher by 100%, 69%, and 77%, respectively. Big-game hunting decreased by 5%.

Comparison of Recreation Values used in Forest Plan and Recent Estimates

Activity	Value Used in Forest Plan Analysis[1] (1995$ per RVD or WFUD[2])	1990 RPA Values[3] (1995$ per RVD or WFUD)[2]	Percent Change
Fishing:			
Anadromous	$47	$93	+98%
Cold water	$20	$93	+365%
Hunting:			
Big game	$44	$42	-5%
Small game	$19	$38	+100%
Waterfowl	$35	$59	+69%
Upland game	$35	$62	+77%
Boating:			
Motorized	$6	$6	0%
Non-motorized	$9	$9	0%
Other:			
Motorized travel	$11	$11	0%
Camping	$11	$9	-18%
Picnicking	$6	$9	+50%
Hiking	$14	$13	-7%
Wilderness	$19	$26	+37%
Wildlife viewing	$39	$47	+21%

1. The values used in the Forest Plan analysis are based on values developed in the **FEIS for the 1985-2030 Resources Planning Act Program.** October 1986. See Appendix F, **Development of Benefit Values and Costs,** PP. F-1 to F-16.

2. RVDs are recreation visitor days, which equals one person engaged in the specified activity for 12 hours. WFUDs are wildlife-fish user days, a similar concept to recreation visitor days except applied to hunting and fishing activities.

3. Source: Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program, Appendix B in The Forest Service Program for Forest and Rangeland Resources: May 1990.

Each criteria is beyond the 25% established threshold.

Action to be Taken

The changed costs and values are an integral part of several concerns that have been submitted to the Regional Forester as potential issues to be considered in a Forest Plan adjustment. Data will be further evaluated in the Forest Plan adjustment process. The new cost and values will be used in the modeling and decisions for the Forest Plan adjustment. The adjustment process is currently on hold until the Interior Columbia Basin Ecosystem Management Project Scientific Assessment and Draft EIS are completed.

Monitoring Item 47
Community Effects

Goal

Verify that projected economic and social effects are in line with actual effects.

Purpose of Monitoring

To determine if Forest-related jobs and personal income are approximately as projected in the Forest Plan.

Threshold of Variability

If changes in community effects are plus or minus 15% from those projected.

Results and Evaluation

Forest-related jobs are primarily associated with four activities: (1) harvesting and processing of sawtimber; (2) harvesting and processing of other types of timber such as roundwood and fuelwood; (3) livestock grazing; and (4) recreation use, including both developed and dispersed recreation. The first table shows jobs per year associated with the specified activities. The Forest Plan projected a total of 2,973 Forest-related jobs per year for the first decade.

Based on the three-year average from 1993-95, estimated Forest-related employment has been 7% less than what was projected in the Forest Plan. The largest decrease has occurred in employment related to sawtimber and roundwood harvesting and processing. Estimated employment is 45% and 89% less, respectively, than projected in the Forest Plan. For 1995, timber related employment is 53% less than projected. Based on the three-year average, recreation-related employment is 20% more than projected in the Forest Plan. Employment associated with livestock grazing and production is 4% less than projected.

Jobs Related to Selected Forest Activities[1] (Jobs per Year)[2]

Activity	Forest Plan[3]	1993	1994	1995	3-Year Average (1993-95)	Percent Change from Forest Plan
Sawtimber	894	746	488	230	488	-45%
Roundwood	179	23	17	22	21	-89%
Livestock	93	89	95	85	90	-4%
Recreation	1,807	2,090	2,197	2,241	2,176	+20%
Totals	**2,973**	**2,948**	**2,797**	**2,578**	**2,775**	**-7%**

1. Estimated jobs associated with sawtimber production, roundwood production, livestock grazing and recreation use for the Forest Influence Zone (Appendix B, Forest Plan FEIS, p. B-66).

2. See Appendix B, Forest Plan FEIS, pp. B-74 to B-85 for discussion of methodology used to estimate job effects. Timber response coefficients are from updates for TSPIRS, 1994.

3. Forest Plan FEIS, Table IV-28, p. IV-84, Alternative C (preferred).

Personal income derived from Forest-related jobs was lower than Forest Plan projections. The Forest Plan projected annual personal income of $69 million from Forest-related jobs. Based on the job estimates discussed above, personal income based on an average for the period 1993-95 was 16% lower than projected in the Forest Plan. Sawtimber harvesting and processing accounted for the largest differences from those projected in the Forest Plan, generating 50% and 91% less personal income than projected. Recreation contributed 23% more personal income than projected in the Forest Plan.

Personal Income Derived from Forest-related Activities[1] [2] (1995 $MM)

Activity	Forest Plan[3]	1993	1994	1995	3-Year Average (1993-95)	Percent Change from Forest Plan
Sawtimber	26.4	20.2	13.2	6.2	13.2	-50%
Roundwood	5.7	0.6	0.5	0.6	0.5	-91%
Livestock	1.7	1.5	1.7	1.5	1.6	-6%
Recreation	35	41	43.5	44.3	43	+23%
Totals	**69**	**63.5**	**58.8**	**52.6**	**58.3**	**-16%**

1. Estimated personal income associated with sawtimber production, roundwood production, livestock grazing and recreation use for the Forest Influence Zone (Appendix B, Forest Plan FEIS, p. B-66).

2. See Appendix B, Forest Plan FEIS, pp. B-74 to B-85 for discussion of methodology used to estimate personal income effects. Timber response coefficients are from updates for TSPIRS, 1994.

3. Forest Plan FEIS, Table IV-28, p. IV-84, Alternative C (preferred).

The difference between recent job and personal income estimates and Forest Plan estimates is primarily the result of decreased timber harvesting from Forest Plan projections, more recent information, and more realistic modeling assumptions. Forest Plan estimates generated $181,806 (1995 constant dollars) of personal income per one million board-feet of sawtimber harvested. In 1995, this estimate increased to $359,800 (1995$), a 98% increase over the Forest Plan projected value.

These results are beyond the established threshold.

Action to be Taken

The data will be further analyzed and used in the Forest Plan adjustment process. The adjustment process is currently on hold until the Interior Columbia Basin Ecosystem Management Project Scientific Assessment and Draft EIS are completed.

Purpose of Monitoring

To determine if local population trends are approximately as projected.

Threshold of Variability

If local population changes are plus or minus 15% from those projected.

Results and Evaluation

The following table compares area population over time. The tri-county area (Baker, Union, and Wallowa counties) lost population during the 1980's. Since 1990, however, the area population has increased by 5.1%. The Forest Plan FEIS estimated the tri-county population to be approximately 50,794 in the year 2000. The 1995 tri-county population is within 5.2% of the projected population. This is within the +/- 15% threshold of variability established in the Forest Plan.

Area Population

	1980	1990	Percent Change 1980-90	1995	Percent Change 1990-95
Baker County	16,134	15,300	-5.2%	16,500	+7.8%
Union County	23,921	23,600	-1.3%	24,400	+3.4%
Wallowa County	7,273	6,900	-5.1%	7,250	+5.1%
Tri-County Area	47,328	45,800	-3.2%	48,150	+5.1%
Oregon	2,633,149	2,842,300	+8%	3,132,000	+10.2%

Source: State of Oregon, Employment Department, **Labor Trends: Eastern Oregon.** December 1995, p. 1, preliminary estimates; Portland State University, Center for Population Research and Census, Portland, OR 1995.

Action to be Taken

Continue to monitor.

Purpose of Monitoring

To determine if payments to local governments are approximately as projected.

Threshold of Variability

If changes in payments are plus or minus 15% from those projected.

Results and Evaluation

The following table displays the payments to counties for the period 1993-1995 and also shows payments projected by the Forest Plan. Payments are 25% of Forest sales and use receipts from timber, land uses, recreation, power, minerals, and grazing. Receipts deposited for improvements on National Forest System land from timber sale area improvement, the value of timber purchaser road construction, and salvage sale funds are also used as a basis for payment.

Study of these sales and receipts shows the dominance of timber sale receipts in providing this source of income. Timber receipts are based on the actual amount of timber harvested. Additionally, payments to the counties are both proportional to the amount of NFS land in the county and based on the total revenue generated for the Forest as a whole (within a given state, with the Wallowa and Whitman National Forests considered separate entities for these calculations).

Payments to Counties
(Does not include Idaho portion of the Hells Canyon NRA)

County	1993	1994	1995	3-Year Average (1995 $)	Forest Plan Projected Annual Payments (1995 $)	Percent Change
Baker	$628,835	$934,637	$429,407	$684,126	NA	NA
Grant	$85,874	$127,568	$58,609	$93,392	NA	NA
Malheur	$3,319	$4,931	$2,265	$3,610	NA	NA
Umatilla	$27,051	$40,185	$18,463	$29,419	NA	NA
Union	$538,024	$785,562	$361,138	$578,412	NA	NA
Wallowa	$1,188,729	$128,775	$85,903	$490,005	NA	NA
Totals	**$2,471,832**	**$2,021,658**	**$955,785**	**$1,878,963**	**$6,571,000**	**-72%**

The decrease in timber harvesting (especially sawtimber) has resulted in a significant decrease in county payments. In comparison with the inflation adjusted Forest Plan projections, the three-year average (1993-1995) of total Forest payments to the indicated counties was 72% lower than projected. This exceeds the +/- 15% threshold of variability established in the Forest Plan.

Action to be Taken

The data will be further analyzed and used in the Forest Plan adjustment process. The adjustment process is currently on hold until the Interior Columbia Basin Ecosystem Management Project Scientific Assessment and Draft EIS are completed.

Purpose of Monitoring

To determine if changes in lifestyles, attitudes, beliefs, or values are occurring more quickly than expected, related to Forest activities, and adversely affecting local communities.

Threshold of Variability

If changes in lifestyles, attitudes, beliefs, or values are determined to be significant and adverse.

Results and Evaluation

With recent changes in social values and public perceptions concerning public land management, changes may occur faster than projected in the Forest Plan.

Action to be Taken

Continue to monitor.

Changes in social values and public perceptions will be addressed in the Forest Plan adjustment process. The adjustment process is currently on hold until the Interior Columbia Basin Ecosystem Management Project Scientific Assessment and Draft EIS are completed.

Monitoring Item 48
Adjacent Lands

Goal

Verify that adjacent lands are not adversely affected by National Forest activities.

Purpose of Monitoring

To determine whether planning assumptions, regarding effects on adjacent and nearby lands from Forest Management activities, are correct.

Threshold of Variability

If any indication of significant adverse effects on local communities or adjacent lands are attributable to National Forest activities.

Results and Evaluation

Coordination with adjacent landowners continues to be conducted through project scoping, in compliance with NEPA. This consists of formal and informal contacts about proposed Forest activities that may affect them.

Effects analysis conducted for proposed management activities addressed potential cumulative effects for both Forest and non-Forest lands, as defined by a particular resource. Cumulative effects analyses continue to show that the selected alternatives for implementation are within acceptable S&Gs for Forest and non-Forest lands.

Cumulative effects analysis continues to identify management activities on non-Forest lands which have impacted the Forest's ability to fully implement a proposal. The primary concern is the accelerated harvest of off-Forest timber lands that are adjacent to the Wallowa-Whitman National Forest. This accelerated harvest is due in part to the demand for raw logs. Site-specific projects are considering this information

in the cumulative effects analysis. Projects are modified to account for these activities so these activities will not adversely affect adjacent lands.

The cumulative effects analysis and monitoring being conducted by District and Forest planners is adequate to determine and mitigate any potential adverse effects on adjacent lands. District and Forest planners assume the high level of off-Forest management activities will continue. At this time, data on which to base a thorough evaluation is incomplete.

The results for these monitoring items are within the threshold of variability.

Action to be Taken

Continue to monitor.

The concern about high levels of management activities on adjacent lands will be analyzed and evaluated in the Forest Plan adjustment process. The adjustment process is currently on hold until the ICBEMP is completed.

5. FOREST PLAN APPEALS AND AMENDMENTS

Forest Plan Appeals

The Chief of the Forest Service received sixteen appeals of the Regional Forester's April 1990 decision to implement the Wallowa-Whitman Forest Plan. Prior to 1994, decisions had been made on two of the appeals, one was dismissed, and a negotiated agreement was signed with the American Rivers Council which resulted in one appeal point being withdrawn. The Chief issued decisions on three appeals in fiscal year 1995 on the Oregon Hunters Association, RY Timber, and Northwest Timber Workers appeals. The Regional Forester's decision was affirmed on all three appeals. Two additional decisions were also rendered early in fiscal year 1996 on the Wallowa County Chamber of Commerce and Friends of Lake Fork appeals. Again, the Regional Forester's decision was affirmed. Decisions are pending on the remaining eight appeals. The appeals are available for review upon request.

Forest Plan Amendments

There were five amendments made to the Forest Plan in 1995.

Forest Plan Amendment 15 added direction to the the Forest Plan on the management of the Eagle Creek Wild and Scenic River.

Forest Plan Amendment 16 added direction to the Forest Plan on the management of the Eagle Cap Wilderness and the Minam Wild and Scenic River.

Forest Plan Amendment 17 documents the selection of the preferred alternative of the Washington Watershed FEIS and ROD, which affects Regional Forester Amendment 2 and requires site-specific changes to the Forest Plan.

Forest Plan Amendment 18 added direction to the Forest Plan on the management of the North Powder Wild and Scenic River.

Forest Plan Amendment 19 documents the selection of the preferred alternative of the Eagle-Paddy Timber Sale, which affects Regional Forester Amendment #2 and requires site-specific changes to the Forest Plan.